Gleanings in Bee Culture

May, 1958 Vol. 86, No. 5

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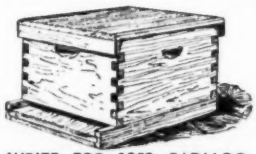

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Monthly HONEY Report

WALTER BARTH, Field Editor

THE HONEY MARKET received a shot in the arm with the recent large export of American honey to West Germany. This movement has appreciably reduced honey stocks in the large producing areas of Arizona and California. However, there are still some large lots of honey in the Intermountain States and in Minnesota and other white clover areas.

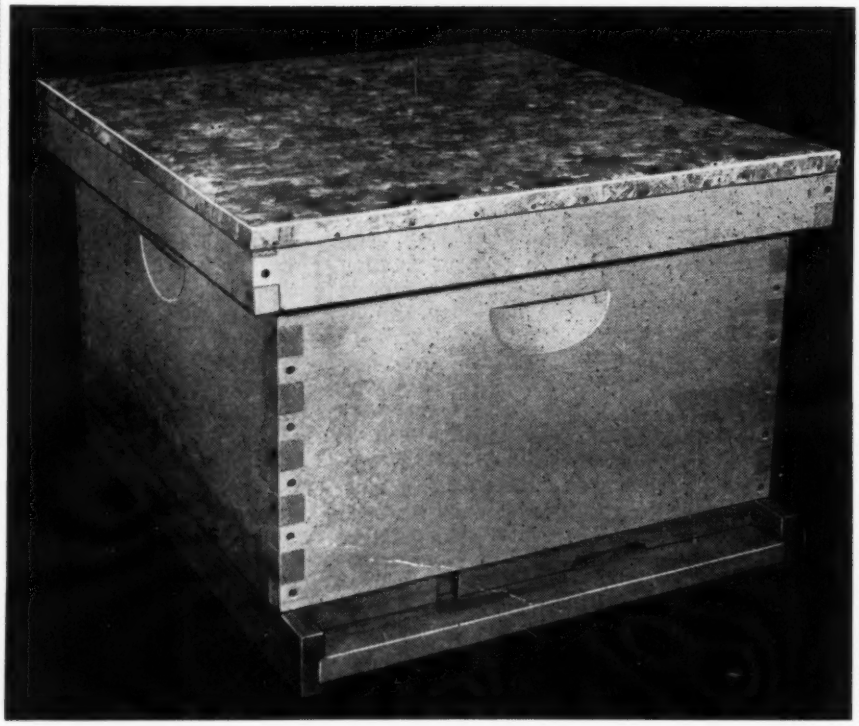
The retail movement of honey continues good according to all reports. The beeswax market has dropped in the last few months to those prices prevailing from about 1950 to 1954. Prices are generally around 45 and 46 cents per pound in cash and two cents extra per pound in trade. Hand-to-mouth beeswax buying seems to be the case in view of favorable condition for the 1958 crop, and a gradual weakening of the price of imported beeswax.

Interest in producing royal jelly seems to be gaining speed and more and more beekeepers are jumping on the bandwagon. Many are giving up quickly after rapidly discovering that the production of royal jelly in profitable quantities takes considerable skill. Wholesale prices for royal jelly range from $160 to $250.00 per pound. One ounce of royal jelly facial cream sells generally from $3.00 to $5.00 per bottle. Thirty royal jelly capsules of 50 mg. each sell from $3.95 to $7.00 per box. Readers interested in producing royal jelly should write Dr. Nevin Weaver, Dept. of Entomology, Texas A. & M. College, College Station, Texas. Dr. Weaver has developed some helpful royal jelly labor saving aids.

Good white clover honey is wholesaling from 12½ to 13 cents per pound. In some areas this includes the cans. Amber honey varies from 10 to 12 cents depending on quality. On the retail scene, one pound jars of quality honey sells for 39 cents; 12 ounce Dyce process creamed honey sells for 33 cents, and 7½ ounce containers of honey butter (plain or cinnamon) sell for 37 cents.

Moisture seems to be ample around the country with a few exceptions such as in parts of North Dakota. The national honey crop outlook is the best in years. Texas beekeepers from all over the state, who met here for the second South Texas beekeeping school, are preparing themselves for the best crop in a decade. Lots of swarming is expected, and to the surprise of all, lots of swarming has already shown up at this writing (April 1).

The North is still digging out of the heavy snows, and that makes me glad to be writing this column from balmy San Antonio. My good friend in northern New York, Michael Boczko, sums up the picture nicely in his recent report when he said, "It is warming up gradually here and the bees have had good flights, but it is a long way yet before we will hear the Spring Peepers. And only then can we be more or less sure that spring is here." For the enlightment of those who have never observed Spring Peepers (small croaking tree frogs), they appear at the first balmy spring weather.



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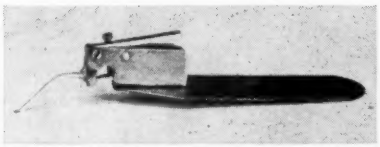

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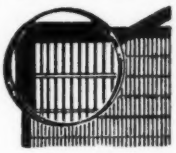

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WHEELING, WEST VIRGINIA

Equipment Needs for the beginner

by DONALD R. SILVERNAIL
Vicksburg, Michigan

SOME OF US have looked longingly through bee supply catalogs and wished for money—big money—to begin our beekeeping operations. But most of us have had to start on a shoestring, with catalog orders restricted to the barest of necessities. I know of no venture that can be started with so little capital, and yet bring such vast returns of satisfaction as does beekeeping.

Later on, the beginner will find opportunities to purchase used equipment, possibly a whole outfit, at a fraction of its original cost. But there is no better way to start than with new factory-made equipment. There are two reasons for this. First, the beginner needs the experience of assembling the hives, wiring the frames, and inserting foundation. This gives him a basic knowledge that can be acquired in no other way. Second, with used equipment there is possibility of disease, with which the beginner is unprepared to cope.

The hobbyist with woodworking tools will ask, "Why can't I make my own hives?" You can. I made six, from pieces of 1 x 10 left over from the construction of my honey house. The finished hives compare favorably with factory-made ones, and I'm pleased with my efforts. Did I save any money? Not any appreciable amount. With white pine lumber costing what it does, it is as economical to order hives from the bee supply catalog. And there is far less work! All the same I am glad I made six—just to convince myself.

When buying, there is a saving in purchasing in quantities of five. During my first season, because of swarming, I was hard pressed to keep one hive and one jump ahead of the bees. But purchasing one hive at a time and ten sheets of foundation is an expensive way to buy.

"How many colonies and how many hives will I need at the beginning?" is frequently asked. From two to five is usually recommended. I ended my first year with seven colonies and eight hives—still one jump ahead of the bees.

The honey crop is usually small the first season. The reason for this may be swarming, or too frequent manipulation. But mostly it is because the bees must draw out sheets of foundation into combs. It is estimated that eight to ten pounds of honey are needed to produce one pound of comb. But along in the second year the beginner builds fond hopes for a bountiful harvest, and decides this is the year to buy that extractor. Unless you have definitely decided to remain a hobbyist, don't buy one that is too small. Buy, not with this year's needs in mind, but vision your needs five years hence when expansion has trebled and quadrupled your output.

And where will you extract? Unless the wife has taken a kindly interest in your beekeeping hobby, you may not be welcome in the kitchen. She likely considers this portion of the house her private domain. She may go so far as to utter an ultimatum something like

this: "You shan't bring that sticky stuff into my clean kitchen." Fortunately there are ways to avoid this domestic crisis. At this stage I built a honey house, but an extracting room can be partitioned off in the basement of your home. Make it of ample size for your needs, with plans for a work bench where equipment can be assembled and repaired. In that way the room will be useful the whole year around. A sink and running water is a big help, but can be added later.

Many beginners plan to avoid the expense of an extractor by producing comb honey sections. I was one of them. But beginners are seldom very successful in their first attempts to produce comb honey sections. The bees must be forced and crowded as they do not like to work in the sections. My first attempts produced an abundance of swarm cells, swarms, and after swarms. I switched back to extracting combs in a hurry. We now produce a quantity of fancy comb honey, but to begin with, lacked the necessary knowledge and experience.

The hives and extractor are the major needs. That is, they are the items where the major part of the beginner's budget is spent. Other items of equipment are just as essential, but their cost is relatively minor.

The next group of items I call manipulation needs. They include a hive tool, a smoker, a bee veil, and bee gloves. These are needed in manipulating the hives and managing the bees. Some days the bees will be so gentle that you will be tempted to discard these items. But watch out, their dispositions are as variable as the weather. In fact, the weather has much to do with their behavior. Their gentleness may dissolve with a rain storm or vanish with the coming of a spell of cool weather. The hive tool is a handy gadget for prying apart frames, supers, and covers that become glued with propolis. At one end of the tool is a scraper for removing burr combs and heavy deposits of wax or propolis.

There is a surprising number of things that will serve temporarily until funds are available for expansion. A used clothes boiler, preferably of copper, makes an excellent liquefying tank. It will accommodate two 60-pound cans of honey. One can usually be purchased for two or three dollars. Ten-gallon lard cans, purchased for 25 cents from the local bakery, will serve the beginner as temporary honey storage tanks. Clothespins will hold the strainer cloth in place as each is filled.

Costly equipment is not essential to turning out an attractive product. With a bit of ingenuity, the beginner can improvise until that day, with funds at hand, he can purchase those coveted items from the bee supply catalog. So don't wait until you have an abundance of folding money to begin that beekeeping venture. Begin now with what you have.

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An Adventure in Beekeeping

by WILLENA JEAN EATON
Winchester, Ky.

Willena Jean Eaton, age 11, daughter of Mr. and Mrs. Willian G. Eaton, Winchester, Ky. Blue ribbon winner at the local 4-H County Fair on all projects, which included: Clothing, Cooking, and Beekeeping. Ribbons and Trophy in background.

IT WAS my happy privilege to become a 4-H Club member in September, 1956 at the Victory Heights Elementary School in Clark County, Kentucky, and to begin carrying some of the projects which were offered there, among which was beekeeping.

I was already helping with the bees in my father's apiary so I entered the beekeeping project and displayed pictures of our work at the Kentucky State Fair where I won Grand Champion on one of them and first and third on others. This, along with other features, was an incentive to continue with the beekeeping project.

Studying and working with bees offers lots of very interesting and educational experiences. For instance, one learns to observe the flowers, trees, and shrubs more closely from which honeybees make their living. One also learns about the seasons they bloom and the consistent pace which the honeybees keep in their daily routine of work as well as how they divide the labors in their hive; and then, the delightful experience of seeing and taking the finished product of their labors—choice honey, which one can eat at home, sell for spending money, or use as nice gifts to friends and neighbors.

When my father was setting up his apiary, we visited a factory where supplies are manufactured for the beekeeper's use. It was lots of fun to see the many items which are made there. The house where the huge chunks of beeswax are piled up ready to be melted and made into foundation was especially interesting.

Some of my first work in the 4-H beekeeping project was the assembling of the frames and then putting the wax foundation in them for the bees to draw out into beautiful white combs. I like to work with a hammer and nails. Also, I learned how to light the smoker in order to produce the right kind of smoke for handling the bees, how to use a bee brush, and how essential the hive tool is in many phases of the beekeeping work.

It is always interesting to check on

The 4-H Club project hives are being checked for winter readiness by Willena Jean as her Dad checks the remainder of the Eaton's back-lot apiary.

The results of the summer's labors are being enjoyed as Willena sells her surplus honey to the neighbors—using her bike for the short runs. Betty Lanter is the pleased customer.

B & Z Library

the work of the queen at various seasons of the year to see if she is in good condition, for a first-class queen is the spark of every good colony of honeybees. I have visited a regular queen-rearing yard, which is operated by a friend of ours in Cosby, Tennessee. It was really a sight to see the queen cells on the specially built frames.

When queen cells appear in a working colony they should be cut out. If another queen hatches out there will usually be swarming, which we do not like to have happen for the beekeeper will lose a lot of worker bees if the swarm is not captured. The desire to gather nectar is also greatly reduced when swarming occurs. During the honey flow season the good beekeeper must have his colonies of bees in the best possible condition.

Working with bees during the time of taking the surplus honey is a particular job, for one has to be very careful so that the bees do not get mad or that they follow the honey to the honey house where it is being processed. When taking off surplus honey one must not "rob" the bees. Enough honey should be left in each hive for bees to live on while all of the trees and shrubs are sleeping during the winter.

The "honey house" is the most appropriate place for a girl to work of all the jobs pertaining to keeping bees, I think. The honey has to be kept clean and dry and packaged neatly especially if it is to be sold. Selling is the feature which I like best of all. It is lots of fun to go from house to house selling to people or to take a large amount to a store-keeper who will buy it. We use several pounds of honey in our home each year to eat, to cook with, and to sweeten drinks.

Yes, honeybees are very unusual creatures and they make a most interesting and profitable project for both girls and boys to carry, and I plan to continue with my beekeeping projects as long as I can be in the 4-H Club work.

Propolis Pete Reminds Me

CHARLES W. LINDSEY, Sebastopol, Calif.

THE FIRST piece of comb honey I ever saw in a jar of extracted honey was in Texas during the 30's. I was working for a migrator (Texas to Minnesota). The honey sold well in Texas, but all the Minnesota people I told about it didn't think they wanted any.

Next year I ran bees in Colorado for myself. Sales were slow, so I tried some "Texas pack" as I called it. I cut some good full combs in chunks that went in the jars. People admired it but only a few bought.

I had put frames with narrow starters between old extracted combs in my supers to get chunk honey. I took a frame that was only partly drawn in spearheads and cut it up for jars.

People seeing these spearheads of comb would exclaim, "Wild honey!" and many bought it at a nickle more on the jar—that odd shaped comb sold it. I hunted through my supers to get all the spearheads I could. It was a help in selling in those depression years.

I took jars of several kinds of honey in a milkman's wire carrier in my car everywhere I went, so I could show anyone interested just what kinds of honey I could get.

One day I stopped at an irrigated ranch to get a sack of onions and saw a five-gallon can of honey on the porch. I asked about it. The woman said, "My husband traded a trucker onions for it. It's that thin watery stuff. I don't like it."

I opened the can to see the thin watery stuff, and it was good light sweet clover. I said, "Sweet clover is considered a number one honey. What kind do you like?"

She answered, "Dad used to keep bees in Illinois. He got the best honey in the fall from Spanish needles. It has some color and taste to it."

"I used to live in Illinois too. I have never seen any Spanish needles in Colorado, but I have honey something like it." So I took my carrier out of the pickup and showed her a jar of rubber weed and rabbit brush honey.

"How does that look to you?"

"It's got a good color, but what does it taste like?"

"Get a spoon and you can find out."

She tasted it and said, "Now, that's real honey". She bought a gallon.

XUM

The Multiple Mating of Queen Honeybees

by A. S. C. DEANS
From the Scottish Beekeeper, March 1958

IN RECENT YEARS a considerable amount of attention has been given by beekeeping scientists to the question of multiple mating of queen bees.

From recent work it would seem that our long-cherished belief that young queen bees mate only once in their lifetime may have to be revised. There seems, however, to be fairly general agreement among observers on the time taken for both orientation and mating flights, i.e., from about five to 30 minutes in both cases. This fact is, I think, important, in view of what can happen in such a short space of time.

Some startling data on queen matings were presented by Alber, Jordan and Ruttner (1), who conducted a series of experiments on the island of Vu'cano, Sicily. They observed the mating flight of about 140 queens of three different races and investigated their progeny. Under favorable weather conditions they found that practically all queens tried multiple mating. Double matings were found to be most frequent, while three, four and five copulations were also registered. On some occasions several matings were noted during the course of the same afternoon. In general, it was found that queens mated to two different drones produced the expected two types of progeny. When the weather was bad or if there was a lack of drones, about half the queens began egg laying after the first successful mating flight. The remainder appeared not to be "satisfied" and continued attempts at mating even up to 24 days between first and last copulations. Although it has been asserted (Kupetz, 1931, and Baumgartner, 1948, cited by Ribbands) (4) that a laying queen may mate again, no evidence to support this view was found. Racial variations apparently did not interfere in any way with multiple mating.

An anatomical study of the mating processes in the honeybee has been made by Woyke and Ruttner (2), who offer some surprising suggestions. These workers were concerned with "the anatomical structures which make it possible for the queen to mate with several drones on the same flight, in the short space of about 15 minutes." Such a suggestion is, to say the least of it, startling and, to me at any rate, difficult to accept. These two workers suggest that the "mating sign" becomes detached from the drone relatively easily and that it is possible for the queen (equally easily) to eject one mating sign after another and be prepared to "accept" other drones in fairly quick succession. Woyke and Ruttner state "The fact that

the queen, left with the mating sign, can mate again on the same flight, was established by the finding of a mating sign close to a copulating pair." This statement seems to me somewhat slender evidence upon which to base such an important conclusion.

Much more reliable evidence is offered by D. F. Peer (3), who has also been investigating the multiple mating of queen honeybees.

The tests made by Peer were conducted under conditions where the genetic nature of the drone population was accurately known and where the proportion of genetically differing drones was also accurately known. These genetical differences were shown by the body coloration—one type of bee having a brown body color and the other a black body color. The brown coloration is known as Cordovan (it is a recessive mutation) and the black coloration is designed "Wild type".

The tested queens were mated at an isolated mating station at a place known as Algonquin Park, Ontario, where there were no bees located within 40 miles. This fact was established by prior test matings. The population at the mating station was provided by colonies headed by heterozygous cordovan queens which were known to be producing mutant and wild type drones in a 1 : 1 ratio.

When fertile the queens were grouped according to the type of worker they produced. Three classes were defined (1) progeny of both types, (2) progeny all wild type, and (3) progeny all mutant. It is clear that those queens in class 1 had mated to one or more cordovan drones and one or more wild type drones; those in class 2 with one or more wild type drones, and those in class 3 with one or more cordovan drones. The relative frequencies of these types are set out as in Table 1.

Now the striking point about Peer's experiment is that knowing the drone population to be 50 per cent mutant and 50 per cent wild type, it is possible to calculate the relative frequencies with which these three types can occur. For the mathematically minded this is done by making use of the binomial distribution where $(x+y)n = 1$. If substitutions are made taking $x =$ the probability of mating with a wild type drone; $y =$ the probability of mating with a mutant drone, and $n =$ the number of matings per queen, the calculated frequencies may be set out as in Table 2. It will be seen that on the basis of a queen mating on an average seven times, remarkably close agreement is found between the calculated frequencies and the observed frequencies.

Similar tests were conducted at Ottawa, where the drone population was two-fifths mutant and three-fifths wild type, and again analysis of the results gave confirmation of the Algonquin Park results.

Making use of the binomial, of course, assumes that every queen mates the same number of times, and that the amounts of semen received and stored in the spermatheca are the same. In the nature of these things there would naturally be some variation in these factors, but this method of analysis would seem nevertheless, to be valid.

There is, thus, quite a bit of evidence to suggest that under certain circumstances young queen bees do, in fact, mate more than once, but I think it would be wise not to assume that this happens on every occasion. Consideration must be given to environmental factors and under the climatic conditions normally prevailing (at any rate in Northeast Scotland) during the summer, mating opportunities are definitely "limited." It would, I think, be reasonable to suggest that if, on any mating flight, copulation is not successfully accomplished, then the queen may make further attempts.

Table 1.

Number of Queens.	Progeny.	Relative Frequency.
162	Wild type and Mutant.	0·9878
1	Wild type only.	0·0061
1	Mutant only.	0·0061

Table 2.

Number of Queens.	Progeny.	Expected Frequency.
161·44	Wild type and Mutant.	0·9844
1·28	Wild type only.	0·0078
1·28	Mutant only.	0·0078

REFERENCES.

(1) Alber, M., Jordan, R., Ruttner, F. and H. "The Matings of the Honeybee." **Zeitschrift fur Bienenforschung**, Vol. 3, No. 1, pp. 1-28 '55.

(2) Woyke, J., and Ruttner, F. "An Anatomical Study of the Mating Process in the Honeybee." **Bee World**, Vol. 39, No. 1, pp. 3-18 '58.

(3) Peer, D. F. "Multiple Mating of Queen Honey Bees." **Journ. Econ., Ent.** 49, No. 6, pp. 741-743 (1956).

(4) Ribbands, R."The Behaviour and Social Life of Honey Bees." **Bee Research Association**, 1953.

Better Queens

The Finished Product

as practiced by JOHN W. HOLZBERLEIN, Meeker, Colo.

Two combs of brood—the top one from the old queen that was killed and the lower one from the young queen in the nucleus that will replace her.

(Continued from April)

THE REARING of a large group of fine young queens is a satisfying achievement. This accomplishment comes only as the result of some earnest effort and keen discernment on the part of the person who undertakes the project. The only way for one to fully appreciate the obstacles to be overcome, the work involved, and the satisfaction that comes with success is to attempt it.

With the queens laying in the nuclei the work is just about done. There are a few things to do yet; these might be classed as the fine points of queen rearing. In the first place not all of these young laying queens are going to be of top quality. Even after practicing the best queen-rearing methods, and executing each step to the fullest of one's ability there will be some queens that will not rate up to our standards. There are so many natural factors involved, factors over which we have no control, that we are going to have to carefully evaluate the finished product and make a choice of what we consider to be queens of satisfactory quality, and discard those that we consider unsatisfactory.

Nature does things in a grand manner, and by natural selection corrects most of her mistakes. But man has long tried to improve on many of the processes of Nature. Queen rearing is an example of this. Although we cannot understand how they happen we should learn to recognize these inferior queens and cull them out at once. Then, too, there will be some doubtful cases, cases where it is difficult to decide whether a queen is a good one or not. Long experience has demonstrated that more often than not whenever there is a question as to a queen's quality the safe thing to do is destroy her.

How to Judge a Queen

Queens will have to be judged when they have no more than eggs in the comb or at most, tiny larvae. We must establish standards by which we may judge them at this time. In the first place, did she lay on time? If she did we have no reason to question her quality on that score. If she did not, and if the other queens in her group are laying—pinch her head. I know, she may be a fine looking individual, and the human tendency is to give her another chance. However, the odds are that she has some abnormality that will prevent her from ever being a top quality queen.

The second point to be observed: Are her eggs properly deposited; are they evenly placed in the centers of the cells; are they closely grouped in a compact circle? These are characteristics that should be closely observed. Of course one has to take into consideration the general condition of the nucleus. Is the queen following an old brood pattern that prevents her from depositing a compact group of eggs? Has she been laying long enough to establish a pattern? Does she have a sufficient supporting population, and is the little colony amply supplied with honey and pollen? On all these points we must be satisfied.

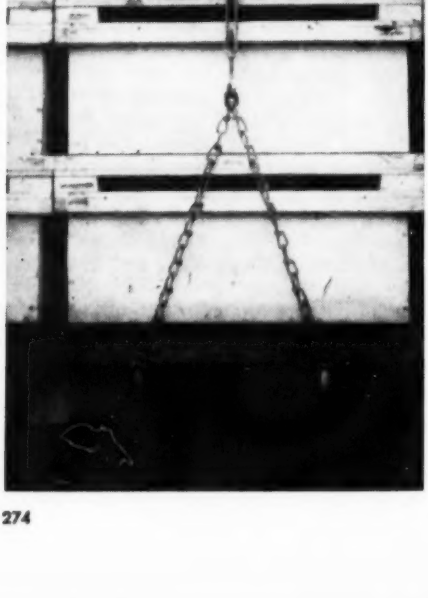
The third point for consideration is the appearance of the queen, herself. Is she large, well proportioned, and rangily built? Is she loosely coupled, with a large thorax, and a deep, well proportioned abdomen? Does she stand up well on her legs and move actively over the comb with the regal grace so typical of a good young queen? If the answers to these questions are "Yes" the chances are that we have a first-class queen. On the other hand, if her eggs are scattered, some on the sides of the cell; if she skips large spots and in general lays erratically though she has had time to settle down, the chances are that she is "no good". If she is deformed in any way, in leg or wing; if she is short coupled or hump backed; if she is undersized or has a flat or stubby abdomen, she is of inferior quality and should be promptly killed. However, if one's queen cells were good and properly handled the percentage of these inferior queens will be low. If the cells were carefully culled it is hard to explain why there are any at all, but there usually are.

If the queens are to be mailed they may now be caged. It is quite generally believed that queens suffer less shock when removed from the "nuc" and caged before they reach full laying capacity. At any rate this belief fits in with the time when they should be removed to keep the nucleus in proper balance. Cages are prepared in advance and placed in a carrier. As the beekeeper locates the queen he lays the comb on its side, and with the cage in one hand gently guides the queen into the open hole. Practice makes for perfection at this job, but if one sets the open cage directly in front of the queen and then touches her lightly it is surprising how easy it is to guide her into the cage with two fingers of the free hand. With a finger over the hole to keep the queen in, 10 to 12 bees of nurse bee age should be picked up by the wings and put into the cage for attendants. Care should be taken to select young bees, but not the downy "baby bees". One should never take old, ragged winged, or shiny bees. If Nosema disease is present old bees are the most likely to have it and transmit the disease to the queen. If Nosema is known to be present it is best not to take the attendant bees from the "nuc" at all, but rather from a populous colony with a large percentage of young bees. This condition can be accomplished by occasionally moving the colony so that field bees are lost and drift into another hive.

One should be careful to keep caged queens out of the sun and protected from cold or rain. Most queen breeders have a "catching box" with a can-

Truckload of nucs. Front three rows have reversible covers. Last three rows are given moving screens when ready to move

Close up of transport nucs on truck, showing turnbuckle tightener.



vas cover where the caged queens may be kept on one side and the empty cages on the other. After being caught they should be mailed as soon as possible, after being securely bundled to keep them dark, but allowing for ventilation. We have little control over them after the post office department takes charge of them, but it is well to mark the shipment so that postal employees know what the package contains, and on the label ask for protection from temperature extremes and for prompt delivery. Bees are pretty tough little creatures, but our tests show that once a queen has been chilled or overheated she is never as good as she was and is most likely due for early supersedure. An educational program on the handling of bees in the mails directed to postal employees would be a big undertaking, but in the long run might pay dividends to our industry. It is regrettable that we are not always able to provide ideal traveling conditions for our queens.

Even with the use of the battery cage it is not always certain that somewhere

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along the line the bees will not be subjected to temperatures that may be harmful. The battery cage is a cage of bees with a feeder can in which quite a few bees may be put in small cages without candy or attendant bees. It is one of the more successful ways of transporting queens by mail. Some of the more progressive Southern shippers have designed battery cages in which the queen cages are located in a circle around the feeder can and therefore always within the cluster. By being caged without feed or attendants the principle is that the queens will depend on the bees in the large cage for feed and therefore create a more natural condition than when she is confined in a regular mailing cage. When conditions are favorable and queens are properly handled they can usually be sent by either method without damage. Where great distances are involved the use of air mail is generally practiced. The cost is little more and in most cases the delivery time is cut in half. This is important, for the longer a queen is confined, thus getting out of condition for egg laying, the longer it will take her to get back into condition.

A Few Words for Those Who Receive Queens

If the queens arrive in warm weather in a shriveled, dried out condition they should be watered upon arrival. This can be done by inverting a small vial full of water covered by coarse muslin over the screen wire of each cage. It is surprising how much water queens and their attendants will consume. A two-dram capsule vial is about the right size. These may be purchased at drug stores. This vial will hold about a teaspoonful of water. The muslin cover is best held in place by a rubber band, and then they may be filled under a water faucet without removal of the cloth. The easiest way we have found to water queens is to place all of the cages on a table in a room where the temperature can be kept around 75°. Place the inverted vials on the cages and then cover the group with a cardboard carton. This excludes the light and aids in keeping the bees quiet. This whole operation takes only a few minutes when one is prepared for it, and is especially useful when queens may need to be kept for several days before introducing them.

Introducing queens into "splits" or "divides" is one thing. Introducing them into full strength colonies is another. While it is relatively easy to introduce a queen into a split which is really only a nucleus, to introduce her into a full strength colony is not always easy. If there is a honey flow in progress the hazards of the operation are materially lessened. But even when no honey flow is present we have found that the Latham introducing cage can be relied upon to do the job. I have been amazed in recent years to find how few commercial beekeepers know about and use the Latham cage. This is the flat, tubular screen wire cage with a one-inch candy hole in one end, covered on the inside by a piece of queen-excluder zinc. The other end which is loose for the purpose of putting in the queen is two inches long and has a candy hole the full length of it. After the holes are filled with candy the queen is placed in the cage without attendants.

The principle is that the bees of the colony will eat the candy out of the short end first, usually within 12 hours. The bees will join the queen in the cage for she cannot escape due to the piece of queen excluder. Here they will groom her, feed her, and no doubt pass around the queen substance. In about another 12 hours the queen will be conditioned to begin egg laying by which time the candy will be eaten from the long hole and the queen may leave the cage. Some improved models of the Latham cage are shown in the Eckert and Laidlaw queen-rearing book. If cared for these cages may be used over and over again and will last for many years. We secured our first ones from Mr. Latham a long time ago, and have since made some additional ones in our spare time. They are not hard to make and no dimension need to be accurately observed except the length of the two candy holes as previously stated. The queen excluder zinc is placed on the inside of the short plug to make it easy to put in the candy and keeps the queen confined until the longer hole is opened.

The wire push-in cage is a "sure fire" method of introduction when properly used, but with its use it is necessary to return to the colony later and release the queen. The Ashurst cage uses the

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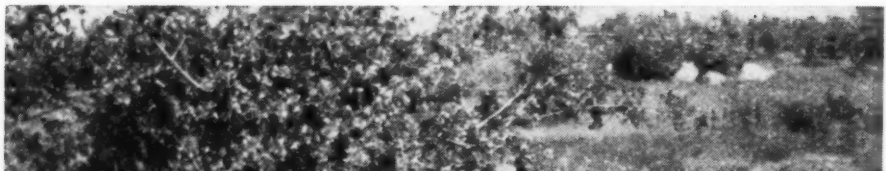


A few "transport nucs". The covers can be reversed for hauling and the entrance closed with the metal "door".

same principle, only that being made of paper the bees remove it. We find it satisfactory for use in nuclei and "splits". In full strength colonies the bees seem to get the queen released before she is ready to lay and as often as not will kill her. The Ashurst cage is one of the best for mailing and where we know the queens are to be used in small units, we recommend its use.

Where queens are not needed at the time they begin to lay and should be removed from the nuclei to make room for more cells, they may be removed, caged in two-hole cages without attendants, and stored in a queen "bank" or "reservoir". Such a queen bank may be established by confining the queen of a populous colony, preferably three stories, in the lower story by use of a queen excluder. Then the caged queens may be placed in the top story where the bees will care for them. It is well to make these reservoir colonies up a couple of days before they are needed as the bees in the top hive will then recognize their queenlessness and will properly feed the caged queens. In the presence of a good honey flow this two-day waiting period may not be necessary, but in times of dearth it is to be strongly advised. A frame may be made to hold the queen cages. Either a single row or a double row of cages may be held in one frame. If properly handled it is my belief that "stored" queens are in every way equal to those caught out of the nucleus just before mailing.

Our queen operation was begun to supply the 600 young queens that we customarily use every spring in our honey-producing colonies in Colorado. Since these queens had to be mated in "nucs" anyhow and since we would not be able to use all of them for some time after we got them home we began to bring them home in the nuclei in considerable numbers. Our "transport nuc" contains five combs of the six and one-fourth inch depth. This permits giving them feed enough for some time as well as a fair sized cluster of bees. The unit has a reversible cover which when inverted gives a screen cover as well as lateral ventilation for

(Continued on page 317)

PRODUCING

Section Comb Honey

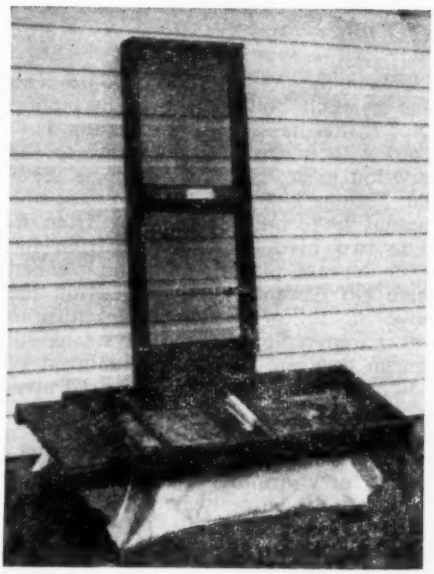
GUSTAVE TELSCHOW
North Lake, Wis.

THE METHOD of getting bees ready for comb honey production is the same as for extracted honey. Soon as the first warm days of April arrive, when bloodroots, anemones, and spring beauties are blooming, the colonies are examined to ascertain if the queens are prolific and clipped. Special attention is given to the amount of honey on hand, and the frames of those colonies that have too much honey are exchanged with those colonies that need feeding.

Too much honey in a two-story hive retards bees from building up rapidly. Most of the center frames should be free from capped honey. Ten or 15 pounds of honey in the outer frames is generally sufficient in this locality. The amount of nectar and pollen coming in governs the activity of the hive and egg laying. Thus stimulative feeding, once or twice a week, is very beneficial.

During the first week of May, when dandelions, plums, and other fruit trees start blooming, if queens are available, heavy colonies are divided. If this isn't accomplished, another hive body with good brood frames are added; two frames of brood are taken away every 10 or 14 days and given to colonies that need help. This procedure is necessary to keep the colonies from reaching the peak of brood rearing before the nectar starts coming in from white clover, so as not to have them start loafing and swarming.

When nectar starts coming in freely from white clover, which generally takes place here about the 15th or 20th of June, the colonies are reduced to one hive body, with brood filled frames and the queen placed on a double bottom board. Two section supers are added with a few bait sections in the upper one. A queen excluder is placed on the supers, and the two remaining hive bodies are put on it to get the bees accustomed to going up into and using the section supers. After four days these hive bodies are taken off and placed on the rear of the bottom board, and five days later all queen cells are destroyed. The double bottom board is used to keep all the bees of the colony united.



No. 1.

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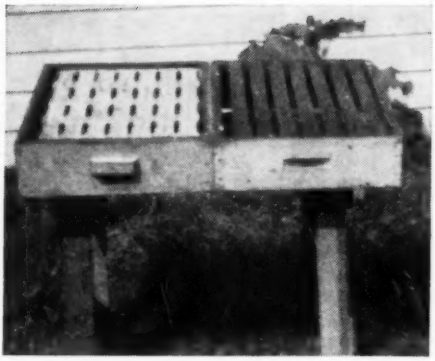

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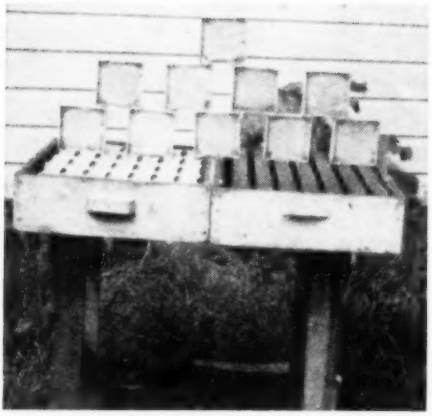


No. 3.

When the double bottom board with screen cloth bottom, shown in picture No. 1, that has a 1" x 4" opening, covered with queen excluding zinc in the division piece, is not available, a regular bottom board is placed beside the parent hive, but facing away from it. The two hive bodies taken from the excluder are placed on it, now called hive No. 2, and the bees leaving the hive the following few days return to the parent colony. Five days later all queen cells are destroyed and most of the bees shaken in front of the old hive.

It is necessary to inspect the parent colony every eight or ten days for a while to see if preparations are being made for swarming. If queen cells are found, the hive body is placed on hive No. 2, being exchanged with one of those hive bodies having the least amount of honey, but with the most brood that is now too old for queen cells, takes its place on the parent hive to make it queenless for ten days and sometimes longer. The colony being queenless for this short period in this locality does no harm, but stops the swarming fever, and all the nectar coming in is stored in the supers. All queen cells in the hive body just placed on stand No. 2 are all destroyed except one, and when the queen from this cell is mated or starts laying she is clipped, and the hive body including the queen is returned to the parent hive, replacing the one on the stand. Queens not getting lost from colonies trying to swarm are killed if I have no other use for them.

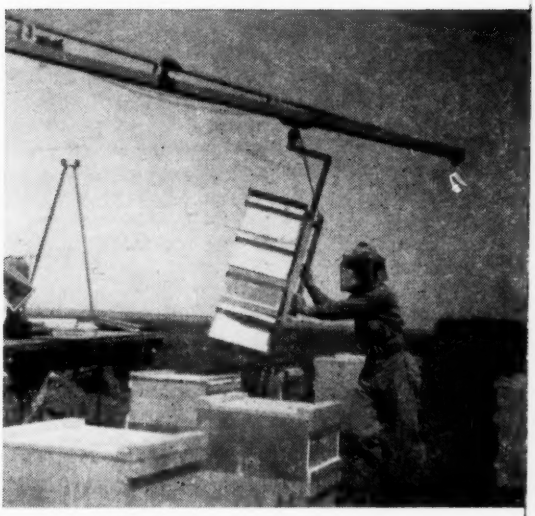
Section supers are added as needed and placed under the sections that are almost finished, but on top when nearing the end of the honey season. Supers used are constructed as shown in picture No. 2, and have a beeway entrance all around the inner edge of the super, that is all around the sections, and has cleats $\frac{5}{16}$" x ½" high x 14" long, that hold the sections in place at the bottom of the super. Section separators 3¼" x 18" long are used and they rest on the ½" end cleats. Split sections are used, with full sheets of wax foundation, and this always gives the best results. When starters are only used in sections, queens sometimes lay eggs in the drone size cells. These supers shown in picture No. 2 can be staggered an inch or more to give sufficient ventilation in very hot weather, but super ventilation is seldom needed for comb honey production in Wisconsin. Picture No. 3 shows comb honey produced in 1957.

New beekeeping methods are still being discovered and, if someone would tell me through Gleanings, how to produce comb honey in Wisconsin without bees having an inclination to swarm, it would be greatly appreciated. Then all I would have to do is put on the supers, sit under a shade tree and watch the bees bring in the nectar. Days with extra humidity in the atmosphere and cream colored thunder-heads floating along far away over the distant horizon, bees would be working unusually hard, and the hum of them going and coming from the field, sounding much like the distant roar of the Niagara Falls, would make the world for a while seem like an earthly paradise.

Fred Flory

Migratory Beekeeper

ANTON JOSEPH NACHBAUR, JR.
Salinas, California



Mr. Flory loading honey with the hopper hoist. Seed alfalfa with cotton in background.

MR. FRED FLORY is one of the many commercial migratory beekeepers in California. He works with his son-in-law, Mr. Irvan Rush, and brother-in-law, Mr. Franklyn John. Together they operate about 3000 colonies of bees for honey and pollination. Mr. Flory uses two two-ton trucks equipped with Hopper hoists to move his bees during the migratory season which starts in Monterey with the early manzanita, sage, pollination of fruit bloom, and ends in Dos Palos with pollination of seed alfalfa, cotton, jack clover, and sometimes blue curls, in favorable seasons.

Mr. Flory builds all his own equipment which is standard ten frame but not interchangeable with factory-made equipment. He uses full-depth hives and supers. Hoffman supers and frames can be used but the Flory frame will not fit in a regular Hoffman super without altering the length of the top bar which is 19¾ inches. All equipment is made in a well-equipped shop and the best pine and redwood is used in the manufacture of all hives, supers, tops, bottoms, and frames.

All honey is removed from the bees when it is fully ripened, by the use of acid covers and a lot of brushing. In his many years' experience with pure acid and all strengths, he still finds it impossible to remove all the bees from the supers without some brushing and shaking. Since it is very undesirable to have any unnecessary bees in the central extracting plant, he still uses the brush to finish ridding the supers of bees.

All honey is placed in a holding room in the central plant where heat is used if the honey is held over night or longer. Usually the honey is extracted the same day it is removed from the bees. It is uncapped by hand, using an electric knife. It is pumped from the extractor to a baffle tank where all particles of wax are removed. From there it goes directly into 50 five-gallon drums. The cappings removed are drained overnight and they are pressed with a 25-ton jack into dry cakes which are rendered in the fall for the wax. The Flory plant can handle four tons or more of honey in a day.

Mr. Flory keeps his loss from disease below five per cent by careful inspection and burning of any disease found. Drugs are never used because Mr. Flory would rather destroy what little disease he has and know it is gone than to cover it up and wonder when or where it is going to show up again.

Mr. Flory's greatest problem in the last few years has been the loss of bees from poisons. He would rather see more time spent on developing poisons that would not harm bees than on anything else. You would understand why

(Continued on page 314)

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Beekeeping from a Wife's Viewpoint

MRS. ERNEST HARER, Center, Colo.

THERE ARE WIVES in this area much better qualified to write on the subject, but I decided to put a few of my thoughts and feelings about beekeeping from a wife's view, down on paper.

We are fairly new at the game—having bought our present outfit three years ago. My husband had about five years' previous experience, working for a rather large commercial beekeeper, and seemed to have every confidence that we would make a go of it. I wasn't so sure myself, not that I doubted that he could do it, but where did I fit into the picture? I was "raised" on a farm and knew that every one had a job to do in an agricultural endeavor.

We were very fortunate our first summer to have what we considered a good crop, and got a good price for the honey. It was a lucky thing, too, as we'd staked all we had on it (a small house in a medium-sized city).

One thing I haven't yet gotten used to, is the reaction of most people when you tell them your husband is a beekeeper, and that you help sometimes. Their simple "Oh", makes you wonder if they think you're a little bit "tetched", or as some say, "Soft job, just hang out the bucket," implying that you're trying to get by in this world without working too hard. In my opinion, it's a highly skilled trade, and you must keep on your toes if you are going to make it a profitable and successful business.

The reaction of a young fellow beekeeper, whom we met for the first time recently, was almost as bad. He asked where we lived and how many bees we had, and when he said, "Gee, I wish I could have warned you", I thought he meant the outfit we bought was a lemon or something. At least I know I looked stupid. But the wife of another beekeeper there, said "You're wrong, she likes the bee business". He must have been joking, or he doesn't have the genuine love for bees that hubby has.

At present, we're not migratory, unless you'd say moving bees to a lower altitude for the winter, only 130 miles is migratory. I'm not in favor of it at the present time, but no doubt I'll see the value of it (with some persuasion from the better half). That is, to move the bees out of the state for winter. I've heard the cry of the beekeeper widow, whose husband is gone for weeks at a time.

You'd think hubby was in another state sometimes, sitting in his easy chair winter evenings after repairing bee supplies all day, just dreaming about his queens again, and wondering which strain is the better honey-gatherers.

Where do I fit in? Well first I'm a pretty good sounding board. Ernie discusses everything from why he thinks the queen excluder is so useful and essential to reversing the brood chambers in the spring to—need I name them all? I'm glad he does as I'm gradually learning a little about beekeeping, though I secretly believe he thinks its like trying to teach a five-year-old the alphabet.

I've helped with almost every phase of the bee work, from extracting to moving bees, and melting wax (now there's a dirty job!). I never have actually worked a hive by myself, but I think I could, as I've lost my fear of the bees.

I'm proud of my hubby, and think he's a very efficient beekeeper. I give a lot of credit to the men from whom he learned the skill and a lot to his flexibility, in that he's willing to try a

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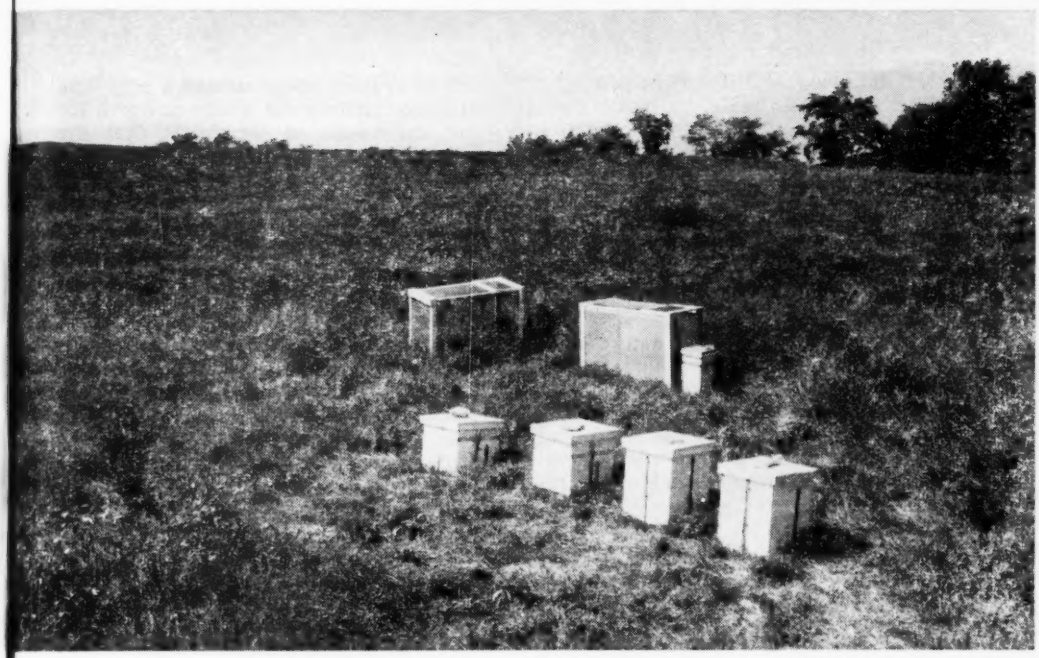


Cages and four colonies of bees in the fields of crown vetch used in pollination studies.

POLLINATION of CROWN VETCH *

EDWIN J. ANDERSON, State College, Pa.

CROWN VETCH **Corenilla varia** L., Penngift variety, is a plant that recently has been given a considerable publicity as a ground cover crop for highway and railroad banks with possibilities for other uses. This plant grows as a heavy mat of stems about two and one-half feet high. It has been known to survive in one location for more than 50 years. Because of this longevity and the heavy mat of stems and roots, the plant has proven to be quite valuable for the prevention of erosion and for soil improvement.[1]

Crown vetch was first observed officially by Dr. Fred V. Grau, a Penn State Extension Agronomist, while he was working in Berks County, Pennsylvania in 1935. The vetch had appeared in a field planted with imported alfalfa seeds and had become established in an adjoining pasture for about 20 years.

Crown vetch is noticeably drought and cold resistant and free from disease. It blooms from mid-June to late August. The flowers vary in color from nearly white to purplish pink.

Dr. Grau recognized the possible value of this plant and some years later began to produce seed. He is now producing seed on several farms in Centre County, Pennsylvania.

Dr. Grau observed that the seed production varied considerably from year to year. This variation suggested that pollination might be one of the causes

* Authorized for publication on February 13, 1959, as paper No. 2229 in the journal series of the Pennsylvania Agricultural Experiment Station.

[1] Penngift Crown vetch for Slope Control on Pennsylvania Highways. Bulletin 576, May 1954, Pennsylvania State University.

for the seasonal differences in seed set. The writer was asked to make a study of the pollination of crown vetch and this was undertaken during the summer of 1957.

Experiments were designed to obtain answers to the following questions:

1. Are insects essential to the pollination of crown vetch?
2. Are honeybees capable of pollinating crown vetch?
3. What are the results when open field conditions are maintained for pollination?

To answer the first question, a 14-mesh wire cage 23 x 50 x 36 inches high was placed over a plot of vetch to exclude all insects that might pollinate the flowers.

To answer the second question, a second cage of the same size was placed over another plot of vetch and a small colony of honeybees was placed against the cage so that the flight of the bees was confined to the cage.

To answer the third question, observations were made of the activities of honeybees and other insects in the open fields of crown vetch. The activities of insects were observed also on other plants blooming in or near the fields of vetch.

The results obtained from these experiments are given respectively in the following paragraphs.

1. The crown vetch covered with a cage from which all insects were excluded produced no seed. In fact, not one seed could be found in this cage.

2. When the cage with bees was observed from time to time a few bees could be seen working the blossoms and seed pods were found to be developing from the blossoms. Two hundred heads of ripe seeds were collected at random from this cage. From this number of heads, 2,014 seeds were obtained or 10.07 seeds per head.

3. Two hundred heads were also collected at random from plants in the open fields and from these heads 3,558 seeds were obtained or 17.79 seeds per head.

It was observed that the seeds collected from the vetch growing in the cages were smaller than those taken from the open fields. To check this difference, 200 seeds from each source were weighed. The 200 from the cages weighed 546.5 mg. while the 200 from the open fields weighed 668.2 mg. The only explanation the writer can give for this difference in weight is that the light eliminated by the wire of the cage reduced the growth of the plants, the size of the seed, and the set of seed accordingly.

A General Electric light meter was placed in one of the cages on a cloudy day where it read 30 foot candles. The meter was then removed and held in the open in the same position towards the sky where it read 52 foot candles. The cage is made of 14-mesh galvanized window screen. Even more light was kept out of the cage when the screen became rusty.

There were approximately 90 acres of crown vetch on this farm and only four colonies of bees. An additional 15 colonies were located one and one-half miles away. It was evident that the number of colonies per acre could have been greatly increased to meet the standard recommendation for pollination in which case the number of bees per plot would probably have increased considerably. These two facts should be kept in mind when the bee population and results of these experiments are studied.

The observations of insect activity covered morning and afternoon readings on three days during which time insect counts were made on 26 plots. Each plot was approximately 8 x 50 feet in area. The number of honeybees observed on the 26 plots of crown vetch were 68, bumblebees 14, wild bees 1, syrphid flies 1.

The average number of insects observed on each plot were honeybees 2.6, bumblebees .5, other insects negligible. The number of honeybees on a plot varied from 0 to 6. It was evident from this relatively poor set of seeds that there were not enough insects to do an efficient job of pollinating the blossoms, since only three pollinating insects were found in an area of 400 square feet. The summer of 1957 with its lack of rain and many days of sunshine was ideal for insects to work and pollinate blossoms.

The four hives mentioned above produced only 115 pounds of honey even though they were surrounded by 90 acres of crown vetch and the vetch was in blossom for nearly six weeks. Not all of the honey obtained from these

Blossoms of crown vetch.

hives was vetch honey since small areas of sweet clover and birdsfoot trefoil were blooming along with the vetch. The honey obtained had a pleasant flavor and an extra light amber color.

Honeybees were observed in much greater numbers on the small areas of sweet clover and birdsfoot trefoil surrounded by vetch than on vetch. This difference indicated that the bees worked the vetch blossoms rather reluctantly. Counts of honeybee activities on these flowers showed that—

56 honeybees were present on the 8 x 50 ft. plots of sweet clover;
40 honeybees were present on the 8 x 50 ft. plots of birdsfoot trefoil;
2.6 honeybees were present on the 8 x 50 ft. plots of crown vetch.

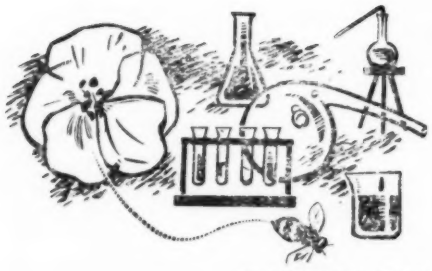
The small production of honey and the relatively few bees on crown vetch as compared with the much larger numbers on sweet clover and birdsfoot trefoil indicated that the vetch was not attractive to honeybees and was a very light producer of nectar.

Honeybees were observed gathering both nectar and pollen from the vetch but upon examination of a few blossoms no nectar was observed. The honeybees had to learn how to trip crown vetch blossoms in order to obtain pollen and incidentally to pollinate the blossoms. The bees would straddle the lower section of the flower with their head facing the center of the blossom then with their two rear legs, the bees would push the two sides of the blossom outward. The pressure caused the cup of the flower to shorten in length and the anthers and stigma to snap out where the pollen was available to the bee and stigma was exposed for pollination. This difficulty encountered in tripping blossoms probably retarded the pollen gathering activity. Nectar was obtained at the base of the flower, hence it was not necessary for the bees to trip the blossoms to obtain the nectar. Pollen was observed on the legs of some of the workers and a few of those without pollen on their legs were crushed and nectar was observed in their honey sacs. There was no difference in the number of bees present in the distant parts of the field when compared with the area adjoining the hives.

A heavy set of seed for each flower

(Continued on page 318)

XUM



Research Review

by NORMAN E. GARY
Student of E. J. Dyce
Cornell University
Ithaca, New York

Edited by
DR. ROGER A. MORSE

Egg Production and Absorption by the Queen

EGG PRODUCTION in the ovaries of the queen is continuous throughout the year. Egg-laying, however, is interrupted for several months, depending upon the climate. Eggs produced during this period are absorbed by the queen's body. Even when egg-laying is active it is quite possible that the queen is absorbing about half the total eggs being produced in her ovaries, the other half being laid in the cells. This absorption process enables the queen to conserve her energy and egg-forming nutrients whenever conditions are unfavorable for egg-laying.

Flanders, Stanley E.
Ovigenic-Ovisorptive cycle in the economy of the honeybee. The Scientific Monthly 85:176-177. 1957.

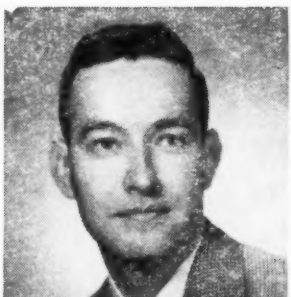
Honey Candies

MANY NEW RECIPES using honey as the chief sweetening agent have just been developed at Pennsylvania State University. Some interesting observations were made on techniques for controlling the degree of hardness and moisture absorption. Creamed honey made by the Dyce process was found to give a fine texture to some candies. Helpful hints in candy-making are included.

Anderson, Edwin J.
Honey candies. Progress Report 186. Pennsylvania State University. Agricultural Experiment Station. 1958.

Recent Advances in Queen Substance Research

IN THE PAST several years sufficient evidence has been accumulated by several workers to establish the fact that a hormone is produced by the



queen bee and secreted over the surface of her body. Worker bees actively consume this "queen substance" by licking it from her body. Indeed they seem addicted to it since any separation of the queen from the workers produces typical responses of distress, emergency cell production, and other queenless symptoms. In a normal colony it therefore appears that a certain minimum amount of this hormone must be present for coordinated social activity.

To date the major effects on worker bees by queen substance that have been discovered are inhibition of worker ovaries and emergency queen cell development. Confined young worker bees exhibit ovary inhibition when they are (1) allowed to feed on a queen (2) queenless and are fed extracts of queens and (3) queenless and are fed the contents of honey stomachs from bees that have recently fed on a queen. Absence of queen substance results in ovary development and the building of emergency queen cells. The correlation between egg-laying by the queen and queen substance production is not clear. Butler has found good evidence to indicate that queens laying few to no eggs can produce adequate hormone to prevent emergency queen cell production. This would explain why bees sometimes fail to supersede queens that are poor in egg production.

(Continued on page 312)

Live and Learn

by Propolis Pete

IN WHAT would ordinarily be a normal year, by this time I should have a few little adventures in beekeeping to talk about. This year, nix. So far, temperatures have been only a little below normal, not too bad. But if we could only get a little sunshine in the middle of the day, so that the bees could get out and into the elms and silver maples, to bring back that first pollen that they need for their build-up. There just hasn't been any sunshine in the middle of the day when it warms up a bit, and I wouldn't be surprised if it will begin to hurt pretty soon.

Come to think of it, we did have two nice days last week, when the temperature went up into the 50's. The sun came, a little thin to be sure, but the bees came out in full force. Since I am getting a bit forgetful, I left the car standing in front of the garage instead of in it, and you should see it now. Those darned spots are all over it, You can't wash them off. Apparently the bees pass a little wax with their droppings, and water just slides over it, without removing it. Detergent in the wash water doesn't do much good either.

It wouldn't be so bad if the car was a dark color, but it has a cream-colored top and panel. I haven't the patience to count the spots, but I'm willing to bet that there are over a thousand, to be removed one at a time with the thumb nail.

Towards the end of last month, on one of the rare mild days, I took advantage of the opportunity to look over the colonies to see what I could see. Not a full examination down to the bottom board, just a peek at the top frames. Nearly all had ample stores and the few that were dubious each got a handful of dry sugar. Later I put on a feeder can with some dregs and drainings left over from last year's extracting, but the bees didn't seem to be over interested in either. It could be that they had enough good stores down below. I have often noticed that when they are well fixed, they don't bother with feeders.

When I looked at them, some of the colonies were boiling with bees, and some had only a few on the top bars. I marked the puny ones with half a brick, so that when I got the chance I could give them a good examination. Up to now it hasn't been possible. The only day that the weather was right, I had other things to do that could not be put off. The funny part is that I did get a chance to take a quick look down the row of entrances, and darned if the marked colonies weren't flying like mad, and the unmarked ones had only a few bees out. You can't win.

One more fling at that pollen business that has been keeping me busy all winter, and that will be the end, definitely. A correspondent suggested that it wasn't floral pollen at all, but dust from grain bins or poultry feeders. I won't rule out the possibility, only there are no chicken farms around here, nor are there any cattle feeding stations. They just don't raise grain here. But one day I put out some chick scratch for the wild birds, and the bees found it. They had themselves a rip roaring time in it. Right away I put out a bowlful of soy flour, and do you think the bees enjoyed that? They didn't even look at it. Guess they are alergic to soy flour, because they never did take it, even when I mix it with brewers yeast and honey for feed cakes.

I'll take part of that back. The first time I tried it, and I guess that was close to 20 years ago, I made up pollen cakes and put them on top of the frames like the books say. The bees took it readily then, and I had to renew the cakes every week. I was living in the city then, and keeping bees on week-ends here. That was the only time that they took it, and I haven't any idea why. That is, unless they have not needed it since. This is a good pollen location, and I have noticed that when they don't need something, they won't take a substitute. That goes for sugar syrup too. Yet if that is true, how come they went wild over that chick scratch? Maybe they were just practicing on that day, because they have left the bird feeders alone since then.

XUM

FROM Foreign LANDS

Translated and Edited by ERIKA BARTH

The Caucasian Bee as a Red Clover Pollinator:

EXPERIMENTS WERE conducted in Denmark to determine the capacity of Nordic, Italian, and Caucasian bees to pollinate red clover. The Caucasian bee, despite her longer tongue, does not gather red-clover nectar faster than the Italian bee, and is slower than both other races in gathering pollen. This is also the case in late blooming red clover. Speed in gathering nectar is almost the same in both Caucasian and Italian bees. The experiments concluded that the Italian bee rates as the best red-clover pollinator in Denmark.

Skovgaard, Tidsskr. Planteavl 1956.

For Pep — Replace Royal Jelly with Honey:

INGREDIENTS: One teaspoon HONEY; juice of one orange; juice of one lemon, raw yolk of one egg (not white).

Method: Shaken together well, this cocktail is marvellous for restoring energy . AND—to sleep soundly, wake up refreshed, take one tablespoonful of HONEY in a glass of milk every night.

The Australian Bee Journal.

In Memory of Dr. Enoch Zander:

MANY ARE the foreign journals that are writing about the deserving works of the late Enoch Zander. It is disappointing to note that little mention has been made of this famous European bee scientist by the American bee press.

Among the many commentators is L'Abbeille de France who says, "All the beekeepers in the world familiar with scientific beekeeping experiments honor Zander. One reads his name in many articles, especially in pathology and bee botony. The beekeeping industry will have to chisel the name of Enoch Zander on its corner stone. He earned the thanks of the beekeepers of his country and he also acquired the gratitude of beekeepers the world over".

The **Schweizerische Bienenzeitung** writes among other things: "In a persistent, never tiring, and happy way, Zander conducted experiments in beekeeping and achieved great things for beekeepers the world over. We should be and are everlastingly grateful to him".

Sudwestdeutscher Imker. Oct. 1957.

Can Honey Trees Become Run Down if Overworked by Bees?

HAVE YOU ever wondered why an exceptionally good honey yielding season for one honey plant might often be followed by a poor one from the same plant? An Australian beekeeper offers a theory that might shed some light on why this condition happens in **tree** honey plants.

The beekeeper found in travels throughout his area that certain trees which had seeded heavily were of sickly appearance and spare of leaf. In the case of native apple trees, the trunks sometimes carried only bunches of dead leaves and remained in this condition for varying lengths of time.

The theory states that this condition was brought about by a heavy flowering coupled with an excellent flow of nectar. This flow, in turn, induced the bees to work the blossoms continuously and, in consequence, bring about a terrific seeding on the trees. Some trees take longer than others to recover from the extremely efficient pollination. In plain words, the tree becomes exhausted and does poorly until it recovers.

The Australasian Beekeeper. Jan. 15, 1958.

Let's Have Pancakes for Supper

MRS. BENJ. NIELSEN
Aurora, Nebraska

How about an outdoor picnic with piping hot pancakes and plenty of honey? — Photo courtesy of the Kellogg Company.

MOST FOLKS seem to regard pancakes as a strictly for-breakfast article of diet—just as so many folks regard honey strictly as a spread for hot biscuits. Let's take them out of that category and serve them for supper some time. The Nielsen's enjoy them for leisurely Sunday night suppers. And how about an outdoor picnic? They will taste twice as good!

Batters for pancakes are thin and should be mixed only until smooth, no longer. Finer textured products result if the melted shortening is cooled before adding, and if egg whites are beaten separately and folded in last. Griddles require no greasing if the batter contains some shortening and the griddle is the correct temperature. When two or three drops of cold water dance merrily on the surface, you can start pouring batter. To avoid loss of lightness pancakes should be turned only once. Serve piping hot with plenty of butter and honey or make a topping of one cup honey, four tablespoons melted butter, ¼ teaspoon cinnamon, and a dash of nutmeg.

For fruity variations add any one of the following to your favorite honeyway recipes: ¾ cup washed and drained blueberries, ¾ cup finely chopped apples, or 1 cup drained, crushed pineapple.

Honey Corn Griddle Cakes

One 12-ounce package corn muffin mix, 1 cup flake cereal, 2 tablespoons honey, 2 eggs, slightly beaten, 2 tablespoons dried currants, 1½ cups milk, and 2 tablespoons shortening, melted and cooled.

Combine corn muffin mix with flake cereal. Add eggs, honey, currants, and milk, stirring only until combined. Stir in cooled, melted shortening. Bake on preheated griddle until browned on both sides, turning only once. Yield: 9 cakes, about 5 inches in diameter.

Honey Potato Pancakes

Three-fourths cup mashed potato, ¾ cup sifted flour, ¼ teaspoon salt, 4 beaten egg yolks, 2 tablespoons honey, 1¼ cups, equal parts evaporated milk and potato water, 4 stiffly-beaten egg whites.

Combine potato, flour, and salt; add egg yolks, honey, and liquid. Fold in egg whites and bake on greased griddle.

Honey Buckwheat Cakes

One cup milk, 1 cup boiling water, 1 cake yeast, 2 cups buckwheat flour, ¼ teaspoon soda, ½ cup hot water, 2 tablespoons honey, and 1 teaspoon salt.

Scald milk and add boiling water. Cool to lukewarm and soften yeast in mixture. Sift in enough flour to make a batter thin enough to pour. Let rise overnight. In the morning, dissolve soda in hot water and add to batter with honey and salt. Drop onto hot greased griddle and brown on both sides.

Editorials

Research on Royal Jelly

DURING THE PAST few years a keen interest has been manifested in royal jelly, a product of the hive, produced by the pharyngeal head glands of worker bees and fed to queen bee larvae during the entire larval development and to worker bee larvae the first two or three days of larval development. Since claims have been made concerning the possible therapeutical uses of royal jelly for human beings, it seems essential that some serious scientific investigations be inaugurated in this country. Some work along this line has been done in Europe.

We are glad to learn that a Royal Jelly Research Foundation has recently been started in the U. S. (See page 302 this issue.) We sincerely hope that future findings may be favorable for royal jelly.

Do Beekeepers Have to Learn the Hard Way?

IT SEEMS THAT most of us are not willing to take advice from those who are well qualified to give it. We prefer to rely on your own judgment which is not always sound.

It is the same way in beekeeping. Beekeepers, especially beginners, could save themselves a great deal of time and expense if they would consult reliable beekeeping literature or dependable and experienced beekeepers for information in solving the problems in beekeeping that come up from time to time.

If beekeepers did more real thinking and less acting in connection with their beekeeping work, they would be better off. The old slogan, "Be sure you are right, then go ahead", applies to beekeeping as well as other kinds of business.

Gaining information the hard way, by the trial and error method, is one way to learn but as Josh Billings said, "The tuition comes high".

And so we suggest following the old slogan, "Be sure you are right, then go ahead", and don't hesitate to seek advice from reliable sources.

Save That Beeswax

MANY POUNDS of beeswax are lost, needlessly, each season because beekeepers fail to save small scraps of wax when manipulating hives in the apiary.

If the average beekeeper would carry along with him a small container, such as a friction-top pail, for gathering up bits of burr combs that accumulate in the apiary, he would doubtless be amazed at the amount of wax that could be salvaged at the close of each season.

At the present time wax is worth about three cents an ounce. Beeswax has so many uses that the demand for it is likely to increase as time goes on. It is certainly worth saving.

Avoid Accidents During the Honey Season

WHILE WE HAVE no way of knowing the percentage of accidents that occur among beekeepers throughout the country during a season we suspect it is higher than it should be.

Obviously some accidents on the highway are unavoidable. For example, a few years ago when we were hauling honey from our apiaries in western Ohio, to Medina, the right rear wheel on the truck sheared off, which caused the truck to make a complete revolution, ending up on the edge of a ditch. Fortunately no

one was hurt. If we had been meeting another car the collision could have resulted in a bad accident.

Trucks used for hauling loads of honey or bee equipment should have good tires, good brakes, and good drivers.

Accidents can and do occur in honey extracting houses. The floor around a honey extractor should be clean. If honey is smeared around on the floor the operator of the extractor may slip and perhaps lose an arm or hand in the reel of the extractor.

When carbon disulphide is used for destroying wax moths in piles of supers, such work should be done in an open shed, or out of doors since this chemical is extremely inflammable.

When cyanogas is used to destroy diseased colonies of bees or wax moths, the operator should avoid inhaling the fumes of the gas which are powerful and deadly. The work should be done out doors.

By exercising reasonable care during the bee season accidents and fatalities can be reduced measurably.

1957 Honey Price Support Operations

THE UNITED STATES Department of Agriculture reports that as of March 15th the 1957 honey price support operations showed that approximately three million pounds of honey were placed under loan. The leading states where the largest amounts of honey originated were California, Minnesota, Arizona, Florida, Nebraska, South Dakota, Washington, Wyoming, Colorado, and Montana.

Loans outstanding on March 15th total approximately two million pounds, with a million and a quarter pounds under the purchase agreement.

The amount of honey put under this program in 1957 was about double that of each of the years, 1956, 1955, or 1954, but about the same as that of the 1953 program except there was no honey outstanding at the close of the period. In 1952, nine million pounds was put under the loan program and five million pounds under the purchase agreement.

The Farming Situation and How It Affects Beekeeping

THE NATION'S POPULATION is increasing at an enormous rate but its farm acreage is not, according to Robert S. Stevenson, President of the Allis-Chalmers Manufacturing Company. It is estimated that by 1970 the United States will have a population of some 200 million people with only 500 million acres from which to feed these people, which amounts to about two and one-half acres per consumer. This means that the output per farm worker will have to increase about 70 per cent over the present ratio, to keep in line with the increased population.

What has this to do with beekeeping? Obviously there will be less and less acreage in crops from which bees can gather surplus honey. During the past decade some beekeepers who at one time kept a few hives in the suburbs of towns and cities, have had to move their bees into the country in order to give way to dwelling houses and business places to take care of the increasing population.

In order to produce sufficient food for our increasing population, it will be necessary to produce enough farm animals, cattle, pigs, sheep, poultry, also fruits and vegetables for food and it will also be necessary to produce a sufficient amount of food to feed the animals. A considerable portion of the food consumed by farm animals is legumes and grasses. Since the honeybee is responsible for the pollination of at least 50 farm crops and since the bee also performs 82 per cent of the pollination service rendered, according to Dr. W. E. Dunham, Ohio State University, it would seem that our present economy is dependent to a large extent on the honeybee for pollinating farm crops produced to feed farm animals and humans.

It is obvious that the beekeeping industry is an important branch of agriculture, for to feed 30 million more people, the ground will have to yield more efficiently. Growing legumes enriches the soil. More bees are needed to pollinate the legumes.

XUM

NEWS

MONTANA HONEY—Washington officeholders who usually are on the receiving end of brickbats from their constituents, this week instead will get "HONEY" from Montana. Lester W. Hall, Livingston's honey gatherer and processor, on behalf of the Montana Beekeepers, has shipped the choice assortment of Montana honey (left) to Senators Mike Mansfield and James E. Murray and Congressmen Lee Metcalf and LeRoy Anderson for presentation to President and Mrs. Dwight Eisenhower. Background picture, above Hall, is Paradise Valley at Deep Creek.—The Park County News, Livingston, Mont.

GOVERNOR WILLIAM G. STRATTON of Illinois is receiving a jar of prize winning chunk honey from Eugene E. Killion. State Agricultural Director Stillman J. Stanard was present to congratulate Eugene for bringing the National Award to Illinois.

XUM

REEL

BEE-E-E CAREFUL — Warren Nicholson, Pasadena, Calif., is doing a swarming business here. He was called to the home of a neighbor, Carl Carlson, to collect a swarm of bees which had settled in a backyard tree and were unwanted by Carlson.—Photo by Wide World Photos, Inc.

PRETTY MARILEE AMMER is the California Honey Advisory Board's Queen. She is majoring in Home Economics at Humboldt State College, Arcata, California, and is receiving practical experience in the field of journalism, advertising, promotion, recipe creation and honey cookery. This year she was the recipient of the new $500 Scholarship given by the California Honey Advisory Board. In order for her to have a better understanding of the Beekeeping Industry, Marilee visited with one of our California families where several members of the Terry family are engaged in the honey business. Mr. Grant Terry, past president of Los Angeles Beekeepers' Association, is explaining the importance of bees to Agricultural Economics Department.—Photo from California Honey Advisory Board, San Marino, Calif.

XUM

American elm (Ulmus americana) one of our earliest sources of pollen.

Let's Talk about Honey Plants

HARVEY B. LOVELL,
University of Louisville,
Louisville, Ky.

Pollen Flowers. By the time this column is published, spring flowers will be in bloom and bees will be gathering their first stores. A good supply of pollen is a most important asset throughout the year. The early pollen flowers are often the wind-pollinated trees such as elms, ashes, oaks, hickories, alders, and poplars all devoid of nectaries but the sources of great masses of wind-blown pollen which often causes "tree" hay fever. In many areas these trees are ably assisted by the maples and willows which strangely enough produce nectar as well as pollen and their pollen is sticky and much more easily collected than the dry pollen of the wind-pollinated trees. Later in the season the roses and poppies, although lacking nectaries, are a good source of pollen. Throughout many areas in the South and Southwest the prickly poppy blooms profusely and its numerous stamens are a good source of an easily collected pollen. Its large white blooms make it one of the most characteristic plants of the semi-deserts of the great plains.

Soybean Honey. Gilbert Perigo, Indiana inspector, told me about a honey he had obtained in northern Indiana at the Columbus meeting. The next day he sent me a sample for examination. It is a nice white honey but has a peculiar flavor which is not unpleasant but is hard to describe. It leaves just a suggestion of a bite on my tongue when I eat a couple of spoonfuls quickly. Mr. Perigo adds: "This apiary was about two counties northeast of the other one from which the sample of bergamot was taken and sent to you. Before collecting the samples from the two yards, I had assumed they would be rather similar, but to my surprise they were entirely different both in color and in flavor. I am confident that the amber sample sent you last fall is almost pure bergamot since we have been securing a very similar honey each year from the same apiary when the bergamot was in bloom and being worked heavily by the bees. Some apiaries were working soybeans at the time the light honey was secured, but they were working bergamot much heavier. Do you suppose that it could be soybean honey?"

This sample from Indiana is very similar in color and flavor to one I described from Harold Kelley of Silver Spring, Maryland, in the February issue of GLEANINGS, and I am pretty sure they are the same.

Nebraska. From David Keidel of Stuart, comes a sample of honey which was made from a plant unknown to him. He writes, "We have a great deal of what I believe to be **Amorpha canescens.** The smaller wild bees work this to some extent but I have never seen honeybees on it at all. However, it has come to be recognized that this plant is of considerable value as a nitrogen-fixing legume. There is another species less woody in growth and averaging

about a foot in height. This plant has fine gray leaves and pink rather than purple flowers. It is much less common in original stands of grass, but is sometimes quite prominent in abandoned sandy fields. We had times this summer when the weather was too humid for alfalfa to produce well, but this plant was worked quite freely by honeybees and in one location, I had a full-depth super made from this source. It started blooming in July and bloomed until at least August 10. I am enclosing a sample of honey which is white but without too distinctive a taste except that it has a slightly sour after-taste which does not seem so noticeable now."

Mr. Keidel sent me excellent specimens of both the lead plant (**Amorpha canescens**) and of the plant which gave the honey. Careful dissection of the dried flowers under a microscope convinced me that the source of the honey was silky prairie clover (**Petalostemum villosum**). Although several species of prairie clover are listed as honey plants and I have seen honeybees working them vigorously in several parts of the country, this is the first sample of honey that I have obtained from a prairie clover. The sour taste seems to have disappeared and the result is a very pleasing light-colored honey.

Emergency Feeding

ROBERT J. WYNDHAM, Upland, Calif.

FOR FEEDING BEES under normal circumstances there is little doubt that the well-known feeders are the best: the Boardman entrance feeder or the Doolittle division board feeder, the latter, if you can keep it tight. But there comes the day in the life of every beekeeper where he has to feed the majority of his colonies. If he is a backlotter he may have a feeder for every one of his hives. But larger scale apiarists do not have that many feeders. And still if winter stores are about to run out before a spring flow is at hand, something in the way of feeding has to be done. Otherwise he will suffer huge starvation losses or at least lose a crop.

Under these circumstances some beekeepers will dig a ditch not less than 50 feet from the beeyard, line it with building paper (asphalt felt), and fill it with sugar syrup. Some floating material, like straw, will be necessary to prevent the bees from drowning. This method will save the day, but it is not too efficient. The strongest colonies, which in many cases will need it least, will get most of the syrup. And then, often the beekeeper will also be feeding somebody else's bees by using this method. However, there are ways of feeding the colonies individually which still require little labor.

If the beekeeper is pressed for time, here is a proven method. Mix granulated sugar with a little warm water, enough to obtain a mixture with the consistency of a paste. The paste should be dry enough not to run. The rest is simple. Just take a trowel or a scoop, take off the covers of the colonies to be fed and spread the sugar paste on the top bars. A little paste which may drop in between the combs won't hurt. Repeat the operation as needed.

The following is an efficient method, though it will work only where no inner covers are used. Take five-pound honey pails and drive 6d nails through the covers (head of nail inside). Then bend the nails a little. Buy as many small corks as there are colonies to be fed. The next step is to drill holes in the hive covers the size of the corks. All that is left to do now is to fill the pails with syrup, and put the lids on with the nails in the ho'es (heads of nails inside). Then place the pails upside down on the hives in such a way that the nails are inserted into the holes in the covers. When feeding is discontinued the corks are put into the cover holes. This way of feeding has the advantage that the hives don't have to be opened in cool weather.

Haro'd J. Clay of Washington, D.C., who has long been associated with the American beekeeping industry, retired in April. Harold will be missed. In fact, there will never be another Harold Clay to help our industry solve difficult problems. We wish Mr. and Mrs. Clay much happiness during their retirement years.

XUM

Notes on Bee Behavior

GEORGE H. LATHAM, Wilmington, Del.

1. Do Honeybees Attack People Away from their Hives?

AN ARTICLE, "California Escapes to the Desert", appearing in **The National Geographic Magazine** for November, 1957 (page 705) says that smoke trees there belong to the pea family and the mature tree, blossoming late in the spring, turns into a bower of minute indigo-blue sweet peas. The magazine goes on to say that bees so love the bloom that they often attack anyone approaching. I suppose the writer refers to honeybees.

In discussing this statement with a native Delawarian, I was told that he had often been stung by honeybees which were working on blossoming shrubs. No, there were no hives of bees nearby, and so far as he knew, no swarms were hanging on or near the shrubs. Was he sure it was honeybees? Could they have been wasps, hornets, or yellow jackets? Indignantly he asked me in uncomplimentary terms didn't I think he knew honeybees when they were after him?

Now, all this raises a question which I never thought of before. I have never before heard of bees, wasps, hornets, or yellow jackets, or any kind of **Hymenoptera** except ants, attacking anyone away from their hives or nests. Of course, they will sting if caught in the hand or crushed (as a bee stings the barefoot boy who inadvertently steps on her while she is at work on a clover blossom). And I still find it difficult to believe that bees will attack people away from their hives—I mean, of course, people not in the vicinity of their hives. Cross bees, when robbing is going on, may attack people 50 or even 100 yards from their hives, but robbing is unlikely in spring when bees are working on blossoms.

What do "Gleanings" readers know about it?

2. Bees Working on Abelia Grandiflora

One of the favorite shrubs on our "Sunny Acre" is **abelia grandiflora,** a bushy plant which bears hundreds of small trumpet-shaped pinkish-white blossoms from June to heavy frost. Honeybees and bumblebees love these blossoms and are always to be seen at work on them during that time. Until last summer I never observed them closely, but one day I saw a honeybee alight on a blossom, go to its base, pause a moment as if collecting nectar, and then on to another blossom, where she did the same thing. I watched other honeybees; they did the same thing, too. A bumblebee or two took nectar from the blossoms in the usual way, by thrusting their tongues into the open end of the corolla. Surprised, I examined a blossom under a pocket microscope, and found a tiny slit in the tubular corolla near the base. You could see the tiny hole if you got the light right. I examined other blossoms. Every one had the same sort of hole near the base! I waited several days and looked again. Every blossom I examined had a hole near its base and the honeybees were apparently stealing nectar through the holes, while the bumblebees were getting it the regular way. Why? It doesn't seem to me that the corollas are long (i.e., deep) enough to keep honeybees from getting at the nectar like the bumblebees do. What made the hole in the blossoms? It would scarcely be part of the blossom structure, for that would defeat Nature's purpose of using the bee to pollinate the flower. It seems likely that the holes are made by some insect to get at the nectar which, somehow, it knew was there.

However, I propose to experiment next summer by covering some of the blossoms so insects cannot get at them, to see whether holes develop anyhow. Perhaps I will find time one of these days to find out (with Fabre-like patience) what (if any) makes the holes. That will be something to look forward to after one retires! In the meantime, perhaps some erudite "Gleanings" reader knows the answer? Do you?

Bees Do Sting Occasionally

E. D. FOX, Washington 22, D. C.

WE HAVE a problem with our bees when we want to enjoy a cook-out. Our outdoor fireplace is located too close to the bee yard. Although our picnic place is fenced off from the bee yard, the bees do not always consider the fence or the human beings who happen to be in the vicinity.

In order to keep our friends we have tried to get a thick vine growth started against the fence to give our bees the privacy they seem to crave.

To date we do have one good climbing rose and one clematis vine started. Last summer we planted a thick row of hollyhocks but they attracted dozens of bumble bees. What we really need is a vine with no bloom and which grows thick and fast.

While we do not have too many victims of honeybee stings we have had friends and relatives stung on occasion.

My husband particularly regrets this as he has tried to interest our young nieces and nephews in the study of the bees. A few times the young folks wrote up facts they had learned for school projects. If they get stung they may lose interest.

Working with the bees my husband has been stung so many times we have lost count. At first, he would swell in the affected areas but now after seven years, a sting is a minor event.

I certainly envy his nonchalance when a bee does strike him. He removes the stinger and goes on with his work. Although a few years my senior, hubby has very little arthritic pain while I am plagued with it. We both believe the venom is beneficial to him.

Somehow I just cannot hold still for a bee sting and lack the courage to try. There was one time when I did make an effort to stand still when an angry bee buzzed around my ear. In a few seconds the ounce of courage present vanished completely and off I went at a fast clip and did not slow down until I reached the safety of our screened porch.

A neighbor who happened to witness my hurried exit from the bee yard told me she did not realize I could run so fast. I told her I was trying to get an arthritic treatment right on the premises and save a trip to the doctor. He would be grateful as he is certainly overworked these days.

Actually the sting of the honeybee gives me little discomfort and no serious after-effects whatsoever. The only reason I get popped at all is because I happen to be foolish enough to stand directly in the bees' line of flight or am careless enough to poke around after a rain storm when the bees are overly anxious to work and make up time lost.

The bees chase our dogs now and then also. We have two, Baby, somewhat dense, and Tippie, quite intelligent. Unfortunately Baby was stung in the roof of her mouth when she very foolishly snapped at a bee. She had a bad reaction with shock and shivers and had to be doctored. The animal failed to learn and still pokes her nose near the bees. We just keep her away from the bee yard altogether.

Tippie was stung by one bee and chased by two others one summer day. She lost the two by crawling under the car. We taught Tippie to avoid getting too close to the bees just by command. When we say, "Bees, Tippie," she changes her course. Having learned her lesson, Tippie has had no further trouble.

Our bees are really not mean and we do have a plan for solving the problem of our picnic area. We hope to build a screened patio adjacent to the outdoor fireplace. Then the only target will be the chef. He will surely be safe, I know, if he keeps the home fire burning.

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"The man who drops his bee journal because he thinks he can't afford it, is almost as foolish as the sailor who ventures out to sea without a compass." —W. Z. Hutchinson, Editor of The Beekeeper's Review.

XUM

A Talk to Beekeepers

M. J. Deyell

I Had a Hunch

I HAVE BEEN acting on hunches most of my life. On March 20th I had a hunch that I should visit Florida to contact some beekeepers in the citrus area in order to see an orange honey flow. My hunch was correct, as you will see later.

I left Cleveland by plane early the morning of March 25th and arrived in Tampa five hours later. On the way down I recalled my first trip to Florida, the spring of 1914 when I traveled by train. At that time the Root Company sent me down to Ranlett's Landing, 16 miles north of Apalachicola, Florida, to bring a carload of bees north. The Company had shipped a carload of bees south the previous November, the idea being to increase the number of colonies to three or four carloads to be shipped north in the spring. I reached Ranlett's Landing on the 23rd of April, in time to experience one of the heaviest honey flows I have ever seen, a tupelo flow.

When the first car of bees was ready to head north I accompanied the 325 hives, shipped on a back wheeler river boat to Bainbridge, Georgia, then transferred into a 40-foot stock car. I had a bed near the door, in one side of the car and spent five nights and days with the bees, enroute to Medina.

We increased the one carload of bees to four carloads that spring. I was sent down after the second carload and the boys who were at Ranlett's Landing brought up the other two carloads later. This story was written up in the February and March 1951 issues of Gleanings.

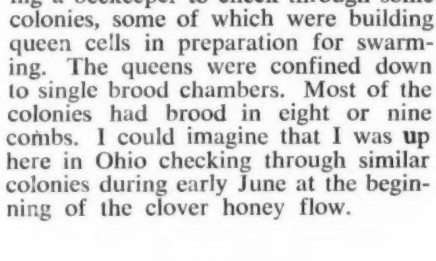
On this recent trip to Florida I was impressed with the size of the state. According to Rand & McNally, Florida has 54,262 square miles of land area as compared with about 41,000 in Ohio. I suspect Florida must be between 600 and 700 miles from tip to tip, although I haven't measured it. It is one of the most interesting states I have visited.

After reaching Tampa I traveled East by bus to visit some beekeepers in the citrus area. I did not have a planned itinerary and it is just as well I didn't. I found Florida beekeepers very hospitable, in fact, they treated me so well that I hated to leave them.

When I visit beekeepers during a honey flow, or when they are extracting honey, I simply cannot stand around and do nothing. I have to be active, so when in a bee yard I take my row of hives to check the colonies, or do whatever is necessary. The Florida beekeepers didn't seem to object to this. During my visit I helped to put on supers, remove filled supers of honey, also helped to extract it. I wasn't accustomed to the warm southern weather, so had to sit in the shade once in awhile, to avoid over-doing.

A Few Things I Observed

I recall one beautiful sunny day helping a beekeeper to check through some colonies, some of which were building queen cells in preparation for swarming. The queens were confined down to single brood chambers. Most of the colonies had brood in eight or nine combs. I could imagine that I was up here in Ohio checking through similar colonies during early June at the beginning of the clover honey flow.



This shows what happens when an empty frame is placed in a hive during a heavy honey flow. The bees will usually fill it with drone comb.

Swarming was rather bad in some sections of the citrus area but in some instances it seemed to be due to congestion in the brood chambers which in turn was due to a lack of comb space for the storage of incoming nectar. The orange flow is quite rapid. The bees begin work early in the morning and continue until late in the evening. It is not uncommon for colonies to gain 10 or 15 pounds in a day.

A Trick of the Trade

One beekeeper used a trick to control swarming that may not be new to our readers. He had shallow supers containing frames with full sheets of foundation on the truck and when he found a colony that was getting ready for swarming he would, of course, destroy all queen cells and would place a shallow super with foundation directly over the single brood chamber, then place the queen excluder on top of the shallow super, piling the filled and partly filled supers on the queen excluder. I was told that this swarm-control measure works quite well in Florida. In most instances it was necessary to give an extra super on top of the pile of supers. The super of foundation directly above the brood chamber provides comb space for the colony, also gives opportunity for the bees to draw out the full sheets of foundation. The bees that are excreting wax have a chance to use it in building combs. It is seldom the queen will go up into the combs of the shallow super to lay eggs, mainly because the bees fill the combs as soon as they are drawn out.

Who's afraid of bees? Not the son of George Astell, Peterboro, Ontario who examines the hive entrance.

I learned that the sugar content of the nectar from orange bloom is higher than it is in some other plants. This being true, filled supers can be removed from hives for extraction when the combs are approximately one-third capped over. I helped to extract some honey and enjoyed very much helping myself to the cappings which were delicious.

It seemed unusual to see orange bloom and ripe oranges on trees at the same time. I understand that this occurs only on citrus trees. The odor or aroma from the blossoms was so pronounced that it could be detected some distance from the groves.

The early frosts throughout Florida and some of the other southern states did considerable damage, especially to the lemon groves. It was interesting when traveling through the state to observe areas of the groves that had been damaged by the early frosts. However, the orange groves in most of the state appeared to survive the heavy frosts and when warm weather came they appeared to take on a new lease on life. The orange flow was approximately three weeks late this year.

There are intermittent honey flows throughout the state and one area is likely to be different from another with respect to honey flora. Some commercial beekeepers practice migratory beekeeping, while a few located in areas where saw palmetto is prevalent, leave their bees in one location the year around.

Most commercial beekeepers leave a super of honey on each brood chamber, over a queen excluder, late in the season and during the winter months. This helps to insure having strong colonies early in the year.

The pictures I took in Florida were not turned in early enough to have halftones made from them for this issue but will appear in the June issue.

SCOUTS AND BEEKEEPING

JOHN MORDEN, Glendale, Mo.

MY WIFE and I are hobby beekeepers, and have 16 colonies in outyards.

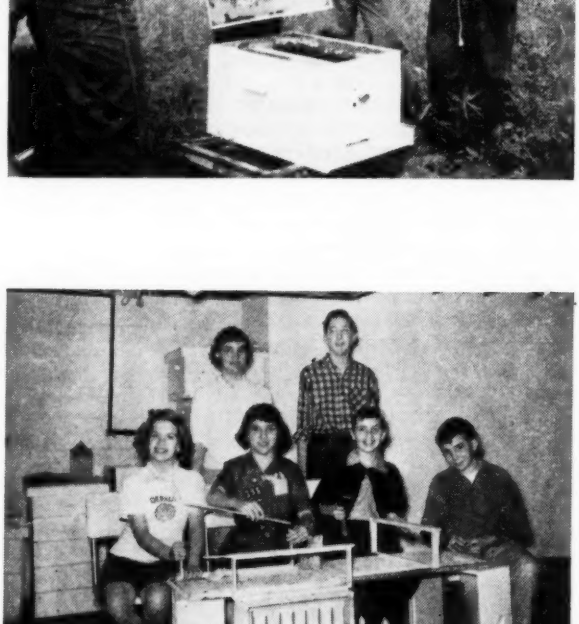
We get lots of enjoyment and satisfaction from teaching beekeeping to scouts for their merit badges.

We think this is a wonderful way to show others the miracle of the little bee.

We are enclosing some snap shots of the scouts as they go about earning their merit badges.

Nancy Markle, left, and Connie Weimer, right, looking through a new colony for the elusive queen.

These scouts were taught to assemble sections and put in the foundation also assemble frames and put in the foundation. They went through the hives and found the queen and identified the drones and workers, and the eggs, larvae, and pupa stages of the brood. They learn and describe how the bees gather nectar and make honey, how they make wax and build combs, also the use of propolis.



Small groups work well together when assembling frames.

The boys were required to hive a swarm or make an artificial swarm. Then they learned the number one job of bees—pollination. They also helped with the extracting. One of the scouts has become a beekeeper already.

We think this is one of the best ways to promote bees and honey, and to teach the younger generation the value of the bee. These youngsters have had lots of experiences and pleasure they will never forget, and truthfully we had as much fun as they did.

What Are We Doing to Our Bee Associations?

by W. K. DAVIS, President, Apicultural Society of Rhode Island

ARE WE DOING all we can to promote interest in our beekeeping associations? Sometimes we wonder why the small attendance at the monthly meeting, and in most cases it isn't because the weather is inclement. But then we pick up a program occasionally just to review the subject matter to be discussed by the main speaker of the program and some talks run something like this, "How to Shingle your Barn with a Do-it Yourself Kit" or Mr. Lemon will discuss "How to Make Your Grass Greener" and another good one is "Proper Care of Your Home Fire Extinguisher".

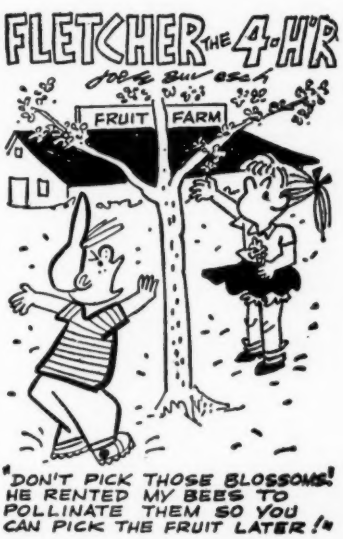
Now what the heck is wrong with us who are supposed to be managing the programs of the beekeeping associations? Do you mean to say that we just are so hard pressed for beekeeping subject matter that we have to run out and get speakers in other fields to fill our programs? It appears now that everyone is so anxious to get the business meeting over with and get to that pot luck supper that we just aren't devoting the time to the business of beekeeping. No wonder our more skilled beekeepers are not coming out to the meetings and our younger folk who need more beekeeping training aren't interested in the meeting because they're not learning a thing basic to beekeeping.

Another fault I find with beekeepers is that they are leaving the organizational affairs to those who know very little about what a beekeeping association is supposed to be doing and these inexperienced people get into officer positions, and what happens is that you get a variety of speakers on the program who talk about everything but the honeybee. Sure all organizations get hard pressed for speakers. Local organizations can't afford to go out and pay $75 or $150 dollars for a speaker. Some organizations don't get $100 a year to run their associations from membership dues but this isn't any excuse for not using practical beekeepers on a panel and getting a good old-fashioned bee discussion going and soon you'll have everyone in the room chiming in.

When it comes time for the main program, break up into groups and assign topics to the group to discuss and then get back in the main body and let the chairman of each group give a resume of the discussion but make sure you're not going to talk about grandmother's flannel night-gown or how to raise alligators, but stick to the subject of beekeeping. If you don't, you have no business calling your association a beekeeping organization.

The main reason why so many organizations get off on the wrong track is that when election of officer time rolls around, some organizations have difficulty finding candidates to fill the position and so anyone who is willing and available is voted into office even though perhaps the person being voted in only attended the last couple of sessions or has just joined the organization and hasn't had experience in beekeeping association work.

If the contents of this article serves as a warning to beekeeping organization to guard against going off the deep end into various categories of subject matter which the bee organization should not concern itself then I'm satisfied that I stuck my neck out.



Who's Who in APICULTURE

To supply a handy reference of the names and addresses of state and provincial apiary inspectors, secretaries of beekeepers' associations, extension workers in beekeeping, and other information often needed by our readers we have corrected our Who's Who in Apiculture as of April 1, 1958.

STATE OR PROVINCE	BEES ON COMBS ADMITTED	NET WEIGHT LAW: EXTRACTED	NET WEIGHT LAW: COMB	INSPECTOR STATE OR PROVINCE	SECRETARY STATE ASSOCIATION
Ala.	No	Yes	Yes	C. A. North, Montgomery	F. E. Guyton, Auburn
Alba.	Cert.	Yes	No	J. W. Edmunds, Edmonton	Raymond Wood, Peace River
Ariz.	Cert.	Yes	Yes	Niles D. Benson, Phoenix	Clarence Benson, Phoenix
Ark.	Cert.	Yes	Yes	George W. Freeman, Little Rock	Mrs. Rea Davis, Little Rock
B. C.	Cert.	Yes	Yes	John Corner, Vernon	John Corner, Vernon
Calif.	Cert.	Yes	Yes	Albert R. Jaycox, Sacramento	Frank A. Watts, Fullerton
Colo.		Yes	Yes	Homer Powers, Denver	Jas. M. Smith, Las Animas
Conn.	Cert.	Yes	Yes	W. T. Brigham, New Haven	Mrs. Harry Powell, New Britain
Del.	Cert.	Yes	Yes	John W. Dukes, Dover	H. E. Milliron, Newark
Fla.	Permit	Yes	Yes	H. S. Foster, Gainesville	R. A. Robinson, Gainesville
Ga.	Cert.	Yes	Yes	W. E. Blasingame, Atlanta	Warren Wilbanks, Claxton
Ida.	No	Yes	Yes	James Allen, Middleton	Albert Larsen, Brexley
Ills.	Cert.	Yes	Yes	Carl E. Killion, Paris	Hoyt Taylor, Pleasant Plains
Ind.	Permit	Yes	Yes	Gilbert Perigo, Indianapolis	Gilbert Perigo, Indianapolis
Iowa	Permit	Yes	Yes	F. B. Paddock, Ames	F. B. Paddock, Ames
Kans.	Cert.	Yes	Yes	R. L. Parker, Manhattan	Mrs. M. C. Mitchell, Altoona
Ky.	None	No	No	Vacant	Jas. R. Adams, Pleasure Ridge
La.	No	Yes	Yes	E. A. Cancienne, Baton Rouge	E. A Cancienne, Baton Rouge
Me.	Cert.	Yes	Yes	Reginald B. Swan, Brewer	C. A. Stanhope, Bradford
Man.	No	Yes	Yes	D. R. Robertson, Winnipeg	D. R. Robertson, Winnipeg
Mass.	Cert.	Yes	Yes	Milo Bacon, Boston	Wallace R. Parker, W. Boylston
Mich.	No	Yes	Yes	D. P. Barrett, Lansing	Margaret Seidelman, Ionia
Minn.	Cert.	Yes	Yes	C. D. Floyd, St. Paul	George Mc Reynolds, Clearbrook
Miss.	Permit	No	No	Homer Tate, State College	C. A. Wilson, State College
Mo.	None	Yes	Yes	Julius R. Anderson, Jefferson City	No association
Mont.	Permit	Yes	Yes	Lloyd N. Graham, Bozeman	Mrs. O. R. Burdett, Laurel
Nebr.	Cert.	Yes	Yes	C. J. Walstrom, Lincoln	Mrs. DeEtta Bellin, O'Neill
Nev.	No	Yes	Yes	Floyd Hilbig, Reno	No association
N. B.	Cert.	Yes	Yes	Adam J. Wilson, Fredericton	Philip Bishop, Sackville
N. H.	Cert.	Yes	Yes	James C. Conklin, Durham	Walter J. Berry, Chester
N. J.	Cert.	Yes	Yes	J. C. Matthenius, Phillipsburg	E. W. Sutvan, Laurel Springs
N. M.	Cert.	Yes	Yes	J. R. Poe, State College	Earl C. Edwards, Los Lunas
N. Y.	Cert.	Yes	No	A. C. Gould, Albany	Mary Cary Trippe, Syracuse
N. C.	Permit	No	No	J. F. Greene, Raleigh	S. C. Squires, Chapel Hill
N. D.	Permit	Yes	No	Dr. Jas. R. Dagger, Fargo	Association inactive
N. S.	No	Yes	Yes	E. A. Karmo, Truro	Philip Bishop, Sackville, N. B.
Ohio	Cert.	Yes	Yes	S. E. Bailey, Columbus	H. R. Swisher, Springfield
Okla.	Permit	Yes	Yes	Clyde Bower, Oklahoma City	Stanley Neel, Mangum
Ont.	Permit	Yes	Yes	P. W. Burke, Guelph	G. F. Townsend, Guelph
Oreg.	Cert.	Yes	Yes	Kenneth Goeden, Salem	Oliver W. Petty, Albany
Pa.	Cert.	Yes	Yes	George B. Sleesman, Harrisburg	A. R. Dean, Pittsburgh
P. E. I.	No	Yes		Dave MacLean, Charlottetown	W. A. Burns, Charlottetown
Que.	No	Yes	Yes	Jules R. Methot, Quebec	J. A. Prud'homme, Laprairie
R. I.	Cert.	Yes	Yes	John A. Mathewson, Providence	Mrs. May Murray, Warwick
Sask.	Permit	Yes	No	D. M. McCutcheon, Regina	D. Campbell, Tisdale
S. C.	Cert.	Yes	Yes	W. H. Purser, Clemson	E. T. Anderson, Lowrys
S. D.	Permit	Yes	Yes	Warren Miller, Pierre	Jack Dawson, Newell
Tenn.	Cert.	Yes	No	L. H. Little, Shelbyville	L. H. Little, Shelbyville
Texas	Cert.	Yes	Yes	C. J. Burgin, College Station	C. J. Burgin, College Station
Utah	Cert.	Yes	Yes	Dr. A. K. Kuttler, Salt Lake City	Marshall D. Levin, Logan
Vt.	Cert.	Yes	Yes	Robert M. Mead, White River Jct.	Clyde N. Wood, S. Woodstock
Va.	Cert.	Yes	Yes	Henry W. Weatherford, Ver. Hill	George Harrison, Purcellville
Wash.	Permit	Yes	Yes	Martin Peterson, Bow	Mrs. E. B. Purchase, Wapato
W. Va.	Cert.	Yes	Yes	O. M. Dick, Inwood	
Wisc.	Permit	Yes	Yes	John F. Long, Madison	L. Bruggeman, Menomonee Falls.
Wyo.	Cert.	Yes	Yes	C. A. Beavers, Powell	Walter Fleigner, Riverton

United States—Division of Bee Culture and Biological Control, James I. Hambleton in Charge. Beltsville, Md.; Section of Bee Culture Research; Southern States Field Laboratory, W. J. Whitcomb, Baton Rouge, La.; Inter-Mountain Laboratory, A. P. Sturtevant, Laramie, Wyo.; **Bee Culture Field Station,** C. L. Farrar, Madison, Wisc.; Beekeeping and Insect Pathology Lab., University of Arizona, Frank E. Todd, Tucson, Arizona; Research Centers: Logan, Utah, George E. Bohart; College Station, Texas, A. H. Alex.

U. S. Marketing Aid: Commodity Stabilization Service, Sugar Division, U. S. Dept. of Agriculture, Marvin Webster, Washington 25, D. C.

Dominion of Canada — Investigation and Demonstration of Bee Culture: Cecil A. Jamieson, Dominion Apiarist, Experimental Farm, Ottawa, Canada; Bee Breeding Station, Pelee Island, Ontario, Prof. G. F. Townsend in charge.

Apiary Inspectors of America — President, C. D. Floyd, St. Paul, Minn.; Secretary, Lloyd M. Graham, Bozeman, Mont.

American Beekeeping Federation — President, Joaquin Watkins, Grand Junction, Colo.; Vice President, Lawrence R. Budge, Malad, Idaho; Secretary-Treasurer, Robert Banker, Cannon Falls, Minn.

Ladies' Auxiliary of American Beekeeping Federation — President, Mrs. Thelma Littlefield, Pasadena, Calif.; Vice President, Mrs. Helen Partello; Boone, Iowa; Secretary-Treasurer, Mrs. Edna Huston

Bee Industries' Association — President, Robert Dadant, Hamilton, Ill.; Secretary, John Root, Medina, Ohio; Treasurer, Baxter Woodman, Grand Rapids, Mich.

Southern States Beekeepers' Federation — President, Harvey York, Jesup, Ga.; Sec.-Treas., Ralph Wadlow, Immokalee, Florida.

Eastern Apicultural Society — President, Alfred Baptiste, Concord, Mass.; Secretary-Treasurer, Mrs. Maxine Manchester, Middlebury, Vermont.

American Bee Breeders' Association — President, J. H. Moody, Prattville, Ala.; Vice President, Eugene Jensen, Macon, Miss.; Secretary, Garnett Puett, Jr. Hahira, Ga.

American Honey Institute — Director, Mrs. Harriett M. Grace, Madison, Wis.; T. W. Burleson, Waxahachie, Texas. Chairman Board of Directors.

National Honey Packers and Dealers' Association — President, E. W. Burleson; Vice President, R. F. Remer; Secretary- Treasurer, Ken Bradshaw. Directors are: R. B. Willson, R. H. Kelty, Jourdain Demuth, and T. E. Burleson.

Honey Industry Council of America — President, Roland Stone, Los Angeles, Calif.; Vice President, Millard Coggshall, Minneola, Fla.; Secretary, L. H. Little, Shelbyville, Tenn.

Royal Jelly Research Foundation — Chairman, R. B. Willson, New York City, N. Y.; Secretary, George F. Hohmann, Napa, Calif.; Treasurer, Leslie Little, Shelbyville, N. C., Directors: E. B. Ault, Weslaco, Texas; Garnett G. Puett, Jr., Hahira, Ga.

STATE OR PROVINCE	BEEKEEPING TAUGHT IN AGRI. COL.	ANNUAL SHORT COURSE	PROFESSOR IN CHARGE OF BEEKEEPING COURSE	EXTENSION WORK CARRIED ON	EXTENSION PERSONNEL IN BEEKEEPING
Ala.	Yes		F. E. Guyton, Auburn	No	
Alba.	No			Yes	J. W. Edmunds, Edmonton
Ariz.	Yes		Frank E. Todd, Tucson	No	
Ark.	No			No	
B. C.	No			Yes	John Corner, Vernon
Calif.	Yes		J. Eckert & H. Laidlow, Davis	Yes	J. E. Eckert, Davis
Colo.	Yes		Joseph Moffett, Ft. Collins	No	
Conn.	No			No	
Del.	No			No	
Fla.	Yes		Milledge Murphy, Gainesville	Yes	John D. Haynie, Gainesville
Ga.	No			Ltd.	W. E. Neville, Athens
Ida.	No			Ltd.	Dr. Barr, Moscow
Ills.	Yes		V. G. Milum, Urbana	No	
Ind.	Yes		B. E. Montgomery, Lafayette	Yes	B. E. Montgomery, Lafayette
Iowa	Yes		Dr. Walter Rothenbuhler	Yes	R. B. Moorman
Kans.	Yes	Yes	R. L. Parker, Manhattan	Yes	R. L. Parker, Manhattan
Ky.	Yes		Lee Townsend, Lexington	No	
La.	No			No	
Me.	Yes		Charles O. Dirks, Orono	Yes	Chas. O. Dirks, Orono
Man.	Yes		D. R. Robertson, Winnipeg	Yes	D. R. Robertson, Winnipeg
Md.	Yes		George J. Abrams, College Park	Yes	Geo. J. Abrams, Col. Park
Mass.	Yes		Frank R. Shaw, Amherst	No	
Mich.	Yes		E. C. Martin, East Lansing	Yes	E. C. Martin, East Lansing
Minn.	Yes		M. H. Haydak, St. Paul	No	
Miss.	Yes		C. A. Wilson, State College	No	
Mo.	Yes		L. Haseman & C. W. Wingo, Col.	Some	Stirling Kyd, Columbia
Mont.	No			No	
Nebr.	Yes		O. S. Bare, Lincoln	No	
Nev.	No			No	
N. B.	Yes		Adam J. Wilson, Fredericton	Yes	Adam J. Wilson, Fredericton
N. H.	Yes		James C. Conklin, Durham	Yes	Walter J. Berry, Chester
N. J.	Yes		Robt. S. Filmer, New Brunswick	Yes	Robt. S. Filmer, New Brunswick
N. M.	No			No	
N. Y.	Yes		E. J. Dyce & R. Morse, Ithaca	Yes	Dr. Roger Morse, Ithaca
N. C.	Yes		W. A. Stephen, Raleigh	Yes	W. A. Stephen, Raleigh
N. D.	Yes		David M. Noetzel, Fargo	No	
N. S.	Yes		E. A. Karmo, Truro	Yes	E. A. Karmo, Truro
Ohio	Yes		W. E. Dunham, Columbus	Yes	Chas. A. Reese, Columbus
Okla.	Yes		G. A. Bieberdorf, Stillwater		
Ont.	Yes		G. F. Townsend, Guelph	Yes	G. F. Townsend, Guelph
Oreg.	Yes		W. P. Stephens, Corvallis	Yes	W. P. Stephens, Corvallis
P.E.I.	No			Some	Dave McLean, Charlottetown
Pa.	Yes	Yes	E. J. Anderson, University Park	Yes	W. W. Clarke, University Park
Que.	Yes		H. J. Plourde, Quebec	Yes	Rene Brasseur, Vaudreuil
R. I.	No			No	
Sask.	Ltd.		C. F. Patterson, Saskatoon	Yes	Provincial Apiarist
S. C.	Yes		W. H. Purser, Clemson	Yes	L. M. Sparks, Clemson
S. D.	Yes		R. J. Walstrom, College Station	No	
Tenn.	No			Yes	State Apiarist
Texas	No			Ltd.	State Inspectors
Utah	Yes		Marshall D. Levin, Logan	No	
Vt.	No			Some	Mr. Marchant, Burlington
Va.	Yes		J. M. Grayson, Blacksburg	Part Time	J. M. Amos, Blacksburg
Wash.	No			Yes	Carl Johansen, Pullman
W. Va.	No			No	
Wisc.	Yes		C. L. Farrar, Madison	No	
Wyo.	No			Yes	A. P. Sturtevant, Laramie

Note: Where we did not hear from a state we repeated last year's listing.

XUM

Organization of the Royal Jelly Research Foundation

R. B. WILLSON, Chairman, New York, N. Y.

ON APRIL 4, 1958 in the City of Valdosta, Georgia, Royal Jelly producers and dealers from all over the United States assembled for the purpose of organizing to promote research work in Royal Jelly. California and Texas, as well as all of the Southern States that produce Royal Jelly were well represented.

It was agreed that in order to place the Royal Jelly industry on a solid basis that the time had come for all producers, dealers, doctors and any other parties interested in this product, to promote medical research on a clinical level. It was conceded that the fine research work done in Europe is in need of re-confirmation here in order for it to be readily accepted by our medical profession, our ethical pharmaceutical houses, our cosmetics industry, and our regulatory government authorities as well. Mr. Garnett G. Puett, Jr., acted as temporary chairman of the meeting, he being our local host and being one of the leaders in assembling interested people to the meeting.

It was unanimously decided to call the organization, "The Royal Jelly Research Foundation" and a committee was appointed to draft a constitution and bylaws.

It was agreed that the Foundation would be governed by a five-man board of directors who would elect their own officers.

It was agreed that funds for supporting desirable research work would come from pledges of Royal Jelly from producers and cash contributions from dealers. At the meeting itself more than $10,000 worth of Royal Jelly was pledged immediately and it is estimated that when all other producers of Royal Jelly are solicited that the Foundation will have funds available of approximately $20,000 for the first year.

It was decided to elect a Board by secret ballot and those receiving the five highest votes would automatically become Board members. Eleven were nominated. Those elected, with designations of office later made by the Board were:

R. B. Willson, Chairman
250 Park Avenue
New York 17, N. Y.

George F. Hohmann, Secretary
1017 Los Carneros Avenue
Napa, California

Leslie Little, Vice Chair. and Treas.
831 Union Street
Shelbyville, Tennessee

E. B. Ault
Weslaco, Texas

Garnett G. Puett, Jr.
Hahira, Georgia

It was agreed to allow all Royal Jelly producers and qualified handlers of Royal Jelly to become charter members by applying for membership and making a pledge of Royal Jelly or cash, prior to May 1, 1958.

The pledges of Royal Jelly were from one pound to 10 pounds, more or less determined by the scope of the producer's operation. One may become a charter member, therefore, by writing to the Secretary or the Treasurer and pledging one pound of Royal Jelly or more for delivery any time before September 30, 1958.

Mr. Willson reported that ready for our support and sponsorship there are two pieces of medical research work already under way and that two others are in the process of negotiation. Favorable results from any one of these pieces of work would result in a radically changed attitude towards Royal Jelly by the medical profession and government authorities. Members will be kept informed of these developments by direct communications from the Board.

It was agreed that no research project would be started without the unanimous approval of the Board and that no money would be spent except on projects where it was agreed by the scientists involved that results would be offered for publication in a scientific journal of high standing.

The Board met after the general meeting was adjourned. Pending the drafting and final approval of the constitution and bylaws the Board was

empowered to act with authority for Foundation, it being the consensus that no time should be lost in starting medical research work.

Officers on the Board will serve without compensation.

The Board decided to accept dealer memberships in the Foundation at $500 per year. The Board welcomes applications from dealers for membership. The support of the entire beekeeping industry is solicited by the Foundation. The Directors welcome suggestions from all.

Watch the Weather and Your Bees

says W. W. HINSHAW, Union City, Ind.

THE WEATHER in May is very important to a honey crop. I feed my bees more in May than all the other months put together. Since retiring I spend some time in Florida and do not get back home to central Indiana until about May 1st and quickly inspect all my hives. Even if some hives have plenty of honey in the fall, if April is fairly warm they get busy and raise a lot of brood and often are getting short of stores by May 1st.

On my first inspection trip I carry a bucket of granulated sugar. Each hive I find short of honey gets a couple of pints of sugar on the inner lid. I also carry a small can of water along and pour a few spoonfuls of water on this sugar. This starts them eating it sooner than they would otherwise.

Some beekeepers feed syrup but this gets them all excited and in the notion of robbing. Sometimes I have some sugared honey left over to feed them. In this case I have worked out a plan to fool them a little. I put this honey in a frame feeder, fill it over half full, then fill up with sugar, add a few spoonfuls of water and put in the hive. This does not excite them, and all is well.

Some two or three years ago I had inspected all the hives on a nice warm May day except one. It was a good strong hive so I said, "I am in a hurry, and it surely is O.K". When I came back in a week the colony was dead. A few days of rainy weather was enough to put them out of business.

When I come around for my second inspection in six or seven days all I need to do is just raise the outer lid. If no sugar is being used I know they still have enough honey. If most of the sugar is gone then I know they are very short of honey so I quickly give them two or three pints more. This keeps them going till the next inspection.

We have a weed in central Indiana which is often called mustard because it is yellow like mustard but it is another weed that comes fairly early in the wheat fields then a little later in the oat fields. While this weed is not liked by the farmers it often tides over the bees through May if the weather is nice, but if rainy or cold, I say watch the weather and your bees.

"Junior's learning beekeeping from the ground up."

Swarm Control

by DR. GORDON TOWNSEND,
Apiculture Dept., Ontario Agric. College

SWARMING IS the natural method of increase of the honeybee and is caused or stimulated by, among other factors, a crowded or congested brood chamber. Swarming should be avoided not only because of the loss of bees and labor required in hiving them but because the bees actually loaf or cease to gather honey for several days prior to leaving the hive. Swarming normally occurs between the dandelion flow and the first two weeks of the main honey flow. In Ontario the clovers secrete nectar in abundance for a period of from three to seven weeks. Should the colony cease to work for several days while preparing to swarm, the percentage of honey gathered will be greatly reduced.

By carefully observing the weather and the development of colonies, swarming may be foretold. Backward seasons, then a sudden turn of good weather result in subsequent heavy egg laying by the queen. The sudden emergence of thousands of young bees, especially if the honey flow has not started, causes an unbalanced and congested condition of the brood chamber, resulting in swarming. Seasons in which the colonies gradually build up, and in which there is no sudden emergence of young bees to overbalance the number of old bees, are not normally conducive to swarming.

The following are some of the most important swarm preventive measures:

1. Raising queens from non-swarming stock.
2. Use of double brood chambers to avoid crowding, especially during the dandelion and fruit bloom flow, and early clover flow.
3. Providing abundant super space for the incoming nectar.
4. Destruction of queen cells providing they have been started recently. Should they be well advanced it is advisable to use more drastic control or remedial measures.
5. Reduce the number of drones by using only good worker combs.
6. Giving more ventilation when the weather is hot.
7. Enticing bees into the supers by a frame of brood or empty comb, especially where foundation is being drawn out in the supers, or where a queen-excluder is used.
8. Preventing barriers of honey between brood chambers and supers by proper spacing of combs.

All remedial or control measures are based on one of the three following fundamental principles:

1. Separation of the queen from the brood.
2. Removal of the brood.
3. Removal of the queen.

The separation of the queen from the brood, commonly called the Demaree plan, is an effective measure for extracted honey production, but is not normally satisfactory for comb honey. When queen cells appear all the brood combs except the one on which the queen is laying are removed to a super, which is later placed on top of the colony. The brood chamber is then filled with full sheets of foundation or drawn comb. A queen-excluder is placed immediately above this brood chamber. Then two or three supers of foundation or drawn comb are placed above the queen excluder and the super containing the balance of the brood is placed on top.

Many beekeepers are using double brood chambers, and even doing away with use of queen excluders, in order to overcome the labor involved in such a system as the Demaree. When two or more hive bodies are used as brood chambers it is seldom necessary to use such severe measures as the Demaree system.

The system of removing the brood is also effective for comb and extracted honey production. When queen cells appear the queen is located and placed with a frame of brood in a new brood chamber on the old stand. The remainder of this brood chamber is filled with full sheets of foundation or drawn

Library

comb. Some of the bees may be shaken off the other brood combs in front of the new brood chamber on the old stand, but enough bees should be left to care for the brood properly. Either one cell may be left or a new queen or ripe queen cell may then be given to the brood if all the queen cells are destroyed.

Removal of the queen, or dequeening, is effective for both comb and extracted honey production. When queen cells appear they are destroyed, the queen is located and killed. Seven to nine days later all new queen cells are destroyed and a young queen introduced. Some beekeepers prefer destroying queen ce'ls, caging the queen and releasing her after seven to nine days, when the cells are again destroyed. Other beekeepers remove all queen cells except one and allow this one to emerge, or another method is to destroy all queen cells and introduce a queen cell which has been raised from a breeding colony.

The Time I Didn't Find the Queen

H. H. ROOT, Medina, Ohio

YEARS AGO, I attended a state meeting of beekeepers in New Jersey, at the invitation of E. G. Carr, the genial Secretary. It was a summer meeting. My train had been a little late, so I reached the meeting place just as the morning program was starting. Several hurried up explaining that a queen-finding contest was about to take place and that they needed one more. It was not the time nor place to object so I took my place behind the hive designated, along with five others standing behind similar hives each with his smoker puffing. At the sound of the pistol, I stooped over and attempted to blow a little smoke into the entrance—not too much. I did not overdo the smoking, for the bellows of the smoker was torn. Knowing that too much smoke is not good for finding queens, I thought nothing of it, but when I raised the cover, in spite of my efforts, there was hardly any smoke available. At the same time, I noticed the bees were black and not quiet, like Italian bees. In fact, they were chasing furiously around the hive. Several flew up and got inside my veil, for unfortunate'y, the back of it was torn.

For some reason I was not stung, so I kept industriously at work, lifting out comb after comb, finding no eggs or young brood—n o t h i n g but capped brood and all the bees seemed to be racing.

At the end of five minutes, I straightened up and announced that I was sure that colony was queenless. At that moment, there was pandemonium. The other contestants had vanished—in fact, they had been standing by empty hives conveniently placed in a circle to be photographed. There had been no contest. My equipment had been prepared in advance. Out of the hundred beekeepers there, the happiest one of all seemed to be Mr. Carr, so I promptly accused him of playing a dirty trick on an unsuspecting and otherwise innocent visitor. Over the years, as often as I met him, I accused him again and again, but he never admitted having any part in it beyond appointing a program committee.

Of the score of secretaries of beekeepers' associations whom I have met, I can recall no one who worked harder for the success of beekeeping than did E. G. Carr. His good work lives on and on, and the foundation he laid supports a monument more lasting than one made of granite.

Our Cover

DWIGHT SIMMONS, Carnation, Washington, a commercial beekeeper in that area rents hives of bees to orchardists. He has to cross the mountains to reach the orchards and this shows his load of bees securely tied on the truck. He doubtless derives pleasure and inspiration from the scenic snow-capped mountains in the background.

XUM

Just News

The **Annual Short Course** offered by **Iowa State College** for Iowa beekeepers and their friends, which includes beekeepers from any place, will be held on May 6 and 7 at Ames. The general theme for the short course is "Bee Disease Control". Dr. T. A. Gochnauer of Minnesota will present three discussions on the chemical control of diseases. Dr. Walter Rothenbuhler of our staff will speak in the area of inheritance. Victor Thompson of our staff will discuss the behavior studies which he has recently conducted in connection with disease control which is developed to be of interest to sideline beekeepers as well as commercial beekeepers. It is hoped that a large number of those interested in beekeeping will find it possible to attend this program.—F. B. Paddock, Ext. Apiarist.

Apicultural Society of Rhode Island —Outdoor meeting at the home of W. K. Davis, 81 Bergen Street, Providence, May 18th at 2 P.M. Inspection of apiary and beekeeping problems discussed. In the event of inclement weather meeting will be held on May 25th. Bring along bee veils.—Wulf Kroekel, Corres. Secretary.

The **Eastern Apicultural Society** will hold its Fourth Annual Conference Aug. 7, 8, and 9, 1958 at The University of Massachusetts, Amherst, Mass. Acting President, Al Baptiste and Dr. Frank Shaw are rounding out an outstanding program. The conference will again encompass almost every phase of beekeeping, and will again provide a wide variety of entertainment. The usual dormitory facilities will again be available at a surprisingly low cost. Food will be available at the cafeteria on the campus. These E.A.S Conferences have become so popular in recent years many people combine the conference with their annual vacations. Mark those dates Aug. 7-8-9 on your calendar and plan to attend. Bring the wife and kiddies too. This conference will give you a start on a tour of New England—a visit you have long wanted to make. Come and see how the Yankees handle their bees for good crops of honey. There will be a Honey Show. Plan to bring an entry.—A. R. Dean.

The next meeting of the **Norfolk County Beekeepers' Association (Mass.)** will be held May 12, 1958 at the Norfolk County Agricultural School, Walpole, Mass., at 6:30 p.m. Inspection of the Club Hive will be the interesting feature of the evening. The April meeting was well attended. The "Production of Honey in an Industrial Area" by Mr. William Davis of Providence, Rhode Island, was very interesting and instructive. Mr. John Proctor installed packaged bees in a hive, and it will be this hive that will receive special interest May 12, 1958.—Edith L. Colpitts, Corresponding Secretary.

The **Midwestern Beekeepers' Association** will meet at the Co-op Building, 3315 North Oak Trafficway, Kansas City, Missouri, at 2:30 P.M., Sunday, May 18th. On the agenda will be a talk on Swarm Control and a movie on beekeeping. A tour of the Co-op Building and grounds will be a special feature. Everyone welcome.—Carroll L. Barrett, Secretary.

The first outdoor meeting of the season of the **Middlesex County Beekeepers' Association (Mass.) will be** held on Saturday, May 24, 1958, at the home and apiaries of member Mrs. S. S. Fitzgerald. 62 South Avenue, Weston, Mass. The Club Hive will be inspected, a business meeting will be held, and a picnic supper will conclude the day. The meeting will begin at 2 P.M.—L. C. Proctor, Corres. Sec.

South Texas Bee School Successful. Nearly 100 beekeepers from all parts of Texas and neighboring states attended the second South Texas Beekeeping School sponsored by the South Texas Beekeeping Hobbyists. The program was aptly handled by Jim Davis of Howard Weaver Apiaries and L. R. Bellinger of San Antonio. The most pleasant moment of the day came when an 11-year-old boy won the grand prize of a complete beehive containing a new package of Weaver's Caucasian bees.

Dianne Segar, 14-year-old daughter of Wilfred T. Segar and Bernedine Segar of Hope Valley, R. I., won one of the 40 first grants offered in the Journal-Bulletin Science Fair with her bee exhibit. Professor Charles H. Smiley head of the Brown University astronomy department made the awards presentation of the grants. 423 junior high school students participated in the awards program. Fair officials said that under a new system of grading the judges showed more discrimination in the selection of first grant winners. Dianne and her parents became interested in beekeeping in 1956 when they joined the Apicultural Society of Rhode Island. They started their beekeeping project in 1957 with package bees. This was Miss Segar's first experience at exhibiting. Mr. Segar is Treasurer of the Society.

Earl Rulison, Amsterdam, New York, a life member of the Empire State and Schenectady County Beekeepers' Associations, died recently at his winter home in Avon Park, Florida.

Raymond A. Roediger, Birmingham, Michigan, a beekeeper for 50 years died March 21, at the age of 69. Mrs. Roediger would like to dispose of 65 colonies of bees also equipment.

Mr. E. G. LeStourgeon, 79, passed away on March 11 at Houston, Texas. Burial services were held at San Antonio on March 13. As a lad Guy served in the Spanish-American War with the Rough Rider Regiment under Col. Roosevelt. Le Stourgeon operated a series of apiaries in Bexar, Medina, and Frio Counties in the early years and a bee supply agency in San Antonio prior to 1917. In 1917 he became Manager of the Texas Honey Producers' Association. He served a term as Representative in the Texas State Legislature and was instrumental in procuring appropriation for Apiary Investigations and Apiary Inspection Service.

During the most active years of his life, he was a leader and official in various beekeeping organizations — American Honey Producers' League, American Honey Institute, Southern States Beekeepers' Conference and Texas Beekeepers' Association.

Mr. LeStourgeon was a talented writer and speaker. In 1924 he became Editor and Manager of BEEKEEPERS ITEM until 1946 when he retired due to failing health. He is survived by one daughter, two grandchildren, two sisters and several nephews.

A beekeeping show was televised by K.C.M.O.-TV on the Farm Hour Program in K.C. Saturday, Apr. 5 at 12:30 noon, a 30-minute show. The **Northeastern Kansas Beekeepers' Association** displayed (by operators Pres. Maynard D. Carter and Secty. R. F. Ferguson) all paraphernalia, tools and equipment

(Continued on page 316)

1958 Price Support for Honey

THE U. S. Department of Agriculture, as announced in the April Gleanings, will support the price of honey at a national average of 9.6 cents per pound which is 70 percent of the parity price adjusted to the 60-pound container level.

Specific price supports by area were announced March 26th, and are as follows. For all states east of Montana, Wyoming, Colorado, and New Mexico:

	Per pound
1. White and lighter table honey	10.7
2. Extra light amber table honey	10.2
3. Non-table and other tb. honey	8.7

For states of Montana, Wyoming, Colorado, New Mexico, and states west thereof:

	Per pound
1. White and lighter table honey	9.8
2. Extra light amber table honey	9.3
3. Non-table and other tb. honey	7.8

Loans will be made at the above rate and honey delivered under the purchasing agreement will be purchased at these rates.

All prices are one tenth of a cent lower than last year.

Those interested in taking advantage of this help should contact their nearest Commodity Stabilization Service Office.

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Buy and Sell

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 18c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month, preceding publication.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. THE HUBBARD APIARIES, ONSTED, MICHIGAN.

IOWA honey, one can or truck loads. RUSSELL D. SMALLEY, BEAVER, IOWA.

CLOVER extracted honey in sixties. ABRAM BRUBAKER, RT. 2, LANCASTER, PA.

MICHIGAN'S FINEST WHITE CLOVER HONEY. New sixties. Fully ripened. You'll be pleased. Sample 20c. JOHN McCOLL, TECUMSEH, MICH.

Large lots, quality honey, 60's and drums. NORTH CENTRAL HONEY PRODUCERS' LEAGUE, BOX 211, BELLEVILLE, WISCONSIN.

TUPELO, wild flower or buckwheat in 60's. Honey candy. EN-R-G FOODS INC., BOX 232, LANCASTER, PA.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C.O.D. terms except where the buyer has thoroughly established his credit with the seller.

WANTED—All grades of extracted honey. Send sample and price. DEER CREEK HONEY FARMS, LONDON, OHIO.

CASH FOR BEESWAX. Write as to quantity and we will quote price. MEUNCH-KREUZER CANDLE CO., INC., SYRACUSE, N. Y.

WANTED—White extracted or comb honey. Send sample. MILLERSPORT HONEY CO., MILLERSPORT, OHIO.

BEESWAX WANTED—Highest prices paid in cash or trade for bee supplies. THE A. I. ROOT COMPANY, MEDINA, OHIO; COUNCIL BLUFFS, IOWA; SAN ANTONIO, TEXAS.

WRITE FOR SHIPPING TAGS and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. WALTER T. KELLEY CO., CLARKSON, KY.

WANTED — Light amber clover, fall flowers, buckwheat and white clover. Send sample and lowest price. CLOVERDALE HONEY CO., FREDONIA, N. Y.

WANTED—Honey in 60 pound cans, also beeswax, any quantity. L. E. ALLEN, TIPTON, MICH.

CASH for Amber and Buckwheat Honey. Best cash price for wax. HUBBARD, ONSTED, MICH.

WANTED—Buckwheat and light amber honey. EASTERN FOOD PRODUCTS, 421 BEDFORD AVE., BROOKLYN, N. Y.

WANTED, chunk comb and extracted honey. Mail sample and price. STOLLER HONEY FARMS, LATTY, OHIO.

WANTED light amber extracted honey in 60's. Also for sale 3000 empty 60's, 20 cents up. HONEYMOON PRODUCTS CO., 39 E. Henry St., River Rouge, Mich.

We render cappings, old combs and buy your beeswax. Shipping tags sent on request.—M. R. CARY CORP., 219 WASHINGTON SQUARE, SYRACUSE 8, N. Y.

HONEY WANTED all grades and colors, in tins or drums, granulated and liquid, highest prices paid, trailer loads. Send samples representing each lot. ALSO ROYAL JELLY. Write CHAS. E. FARRIS CO., 99 HUDSON STREET, N. Y. CITY. Established since 1910.

FOR SALE

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. THE HUBBARD APIARIES, Manufacturers of Beekeepers' Supplies and Comb Foundation, ONSTED, MICHIGAN.

THE BIGGEST BEE SUPPLY Catalog published (64 pages) free for the asking. Listing many items not found in other catalogs. No agents—buy direct and save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

QUEENBEE PAINTING OUTFITS, $1.50 postpaid. SOUTHWICK APIARIES, WABAN, MASS.

Makers of ROBINSON plain and WAVY-WIRED foundation. Also render and buy beeswax. Order direct from manufacturer and save dealer costs. Shipping tags free. WAX WORKERS, INC., ITHACA, N. Y.

FOR SALE—Root uncapping machine, four frame extractor, unused. Root wax press. RALPH OSWALD, TIFFIN, OHIO.

Two-frame reversible extractor, like new. $35.00 F.O.B. MAURICE SHUTTS, MERRILL, N. Y.

FOR SALE—E-Z loader, used one season. Very good condition, complete with factory ramp. $350. EDWIN L. HARTER, BOX 652, HOT SPRINGS, S. D.

BEES AND QUEENS FOR SALE

We use all possible care in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

CARNIOLAN and CAUCASIAN Bees for 1958. Booking queens. Each, $1.00; 2-pound bees with queen, $4.00. 3-pound bees with queen, $5.00. LEWIS & TILLERY BEE CO., RT. 3, BOX 251, GREENVILLE, ALABAMA.

BEEKEEPING BUSINESS, bees, modern shop, 2000 supers, excellent location. W. A. WALKER, PORT AUSTIN, MICH.

THE NORMA ROY Apiary Italian bees, 3-pound with queen, $4.15; 4-pound with queen, $4.90. Book your order now. No down payment. Live delivery and a health certificate with shipment. NORMA E. ROY & SON HESSMER, LA.

PACKAGE BEES, QUEENS. Attractive prices, write. CRENSHAW COUNTY APIARIES, RUTLEDGE, ALA.

XUM

3-BAND ITALIAN and Carniolan bees. 3-pounds with queen, $4.90; 5-pounds, $6.80. Queens, $1.25. LUTHER PICKETT, EFLAND, N. C.

CARNIOLAN and CAUCASIAN queens, $1.00 each. ROY WADDELL, R. 3, WOODRUFF, S. C.

DARK ITALIAN BRED for heavy production—3-lb. package with queen, $4.50. Queens, $1.00. HENRY LOEHR, CALDWELL, TEXAS.

FOR SALE—50 hives of bees on location. All in two and three story hives with lots of stores, also 60 shallow extracting supers with drawn combs, also 20 new supers without frames. Cause of sale, old age. HARVEY HOUSEKEEPER, 14324 BURGESS, DETROIT 23, MICH.

FOR SALE—20 double-story colonies bees, 10-frame. 70 full-depth supers. Equipment. ARDEN DANIELS, BECKER, MINN.

FOR SALE—Bees and equipment. MRS. CARL BILLINGS, 4845 EWING AVE., SO., MINNEAPOLIS 10, MINNESOTA. WA 2-6846.

FLORIDA OPPORTUNITY—established 500 colony business with necessary equipment in heart of orange belt, complete extracting plant with large storage building, 3-bedroom concrete block home. For particulars, contact JOHN C. FISHER, Realtor, WINTER HAVEN, FLORIDA.

BOOSTER BEES 70c lb. after May 15th. Bulk or packed tupelo and gallberry extracted or comb. A. V. DOWLING, VALDOSTA, GEORGIA.

HELP WANTED

BEE MAN—Experienced, single sober. Commercial honey production. Season, April-December. Room and board furnished. Give qualifications. LAVERN DEPEW, AUBURN, N. Y.

SEEDS

HONEY PLANTS our specialty. Catalog on request. PELLETT GARDENS, ATLANTIC, IOWA.

MISCELLANEOUS

WANTED: Good used bee shipping cages. G. C. WALKER, PHARR, TEXAS.

BEES REMOVED from house or tree or hive without touching either house or bees. Bees will then move honey into hive. Save property, honey, and bees with my method. Send $2.00 for details. Satisfaction guaranteed. GEORGE HAWKINS, RT. 1, LAWSON, MO.

ROYAL JELLY, $10.00 per oz., bulk price, $8.00 per oz. O. K. ANDERSON & SON APIARIES, Box 193, COFFEE SPRINGS, ALABAMA, U.S.A.

WANTED: To buy bee outfits and bee equipment in any area. We have buyers for outfits, regardless of size. SIOUX HONEY ASSOCIATION, Supply Dept., SIOUX CITY, IOWA.

ROYAL JELLY (with Vitamin B-1 and Calcium Pantothenate) box of 30 capsules with 25 mg. Royal Jelly per capsule $2.15 to beekeepers, retails for $4.25, box of 30 capsules with 50 mg. Royal Jelly per capsule $3.50 to beekeepers, retails for $7.00, box of 100 in bulk 50 mg. new pack without vitamins $7.50. Postage paid in the U. S. PRAIRIE VIEW HONEY CO., 12303 12th STREET, DETROIT 6, MICH.

NOTICE TO ALL OUR ROYAL JELLY DEALERS: We now have a specially constructed self-folding display card also an attractive display carton that holds one dozen boxes of Royal Jelly capsules. They are FREE. Let us know how many you need. PRAIRIE VIEW HONEY CO., 12303 12th STREET, DETROIT 6, MICH.

BEAUTY CREAM with Royal Jelly, ¾-oz. jar, $15.00 dozen to beekeepers, retails for $2.50, 1-oz. jar, $18.00 dozen to beekeepers, retai s for $3.00, 2-oz. jar, $24.00 dozen, retails for $5.00. PRAIRIE VIEW HONEY CO., 12303 12th STREET, DETROIT 6, MICH.

HONEY WANTED
Carloads and less than carloads. Mail sample and best prices in all grades.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

Booking orders now. Over 30 years a shipper. Send for Free Circulars.
BLUE BONNET APIARIES
Weslaco, Texas

J. E. WING & SONS
45 Years Continuous Service
Italian Package Bees
and Queens
Our Specialty
Knights Landing, Calif.

ITALIAN QUEENS
Top quality superior strain by 46 years experienced queen breeding.
— Your Satisfaction Always Here —
$1.00 ea. 12 or more, 90c ea.
MERRILL APIARIES
302 Beatrice St. Greenville, S. C.

BUILD your own FACTORY TYPE HIVES and SUPERS with SAMPSON CORNER JOINTS. Only a bench saw and hand tools required. Our low cost Copyrighted BLUE PRINTS and INSTRUCTIONS cover everything and can save you many dollars. Write for information.
EARL TAYLOR MALCOM, IOWA

ITALIANS
Queens, $1.25 Bees, $1.00 Cages, 50c
Royal Jelly by contract
Sioux Member 905
NASSAU BEE CO. HILLIARD, FLA.

HONEY LABELS
Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.
C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

When you think of BEES and QUEENS

Think of —

Merrill Bee Co.

P.O. Box 115
State Line, Miss.

Our 100% SATISFACTION has been good for 46 years. Let us prove it.

Pkgs. with Queens

2-lb. pkg.	$3.50 any number
3-lb. pkg.	4.50 any number
Untested qns.	1.00 any number
Tested qns. ..	1.50 any number

Terms $1.00 per package with orders, balance before shipments.

LITTLE'S
ITALIAN QUEENS

1 to 24	$1.45
25 to 99	1.35
100 and Up	1.25

Until June 15

ROYAL JELLY

Bulk & Capsules Write for Prices

LITTLE'S APIARIES
Shelbyville, Tennessee

U. S. Savings Bonds come in all sizes . . . . . and grow bigger every year.

ROYAL JELLY, box of 30 capsules 25 mg. each $5.00, 10 boxes, $25.00, 50 mg., box of 30 capsules $8.50, 10 boxes, $42.50, special pack of 15 in vial, $1.95, 10 vials, $13.50. SUNNYBROOK HONEY FARMS, 13600 LIVERNOIS, DETROIT 38, MICHIGAN.

ROYAL JELLY—We buy any amount. We sell in any amount, also royal jelly capsules at jobber, wholesale or retail levels. R. C. DANIELS & COMPANY, PICAYUNE, MISS.

MAGAZINES

Archiv fur Bienkunde, International journal for Bee Culture and beekeeping economics. Founded in the fall of 1918. Oldest economic bee journal in the world. Praised again and again for its decades of independent leadership through many endorsements and advice as a valuable source also for the practice. Classic. Yearly DM 5.50. Any aspiring beekeeping friend will receive a sample copy. BIENE-VERGLAG, GIELBACK, LINDAU, GERMANY.

Know interesting facts concerning the bees of India, about species of bees found in India only, through the INDIAN BEE JOURNAL, published from India in English, Annual Subscription $2.25, sample copy 40 cents. Old Volumes $2.50 per year. Obtainable through the A. I. Root Company, Medina, Ohio, U.S.A. to whom the dollar might be remitted.

BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping. With Apicultural Abstracts it costs $5.50 per annum, or $6.00 including membership of the Bee Research Association. Apicultural Abstracts only $4.50 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 BARNETT WOOD LANE, ASHTEAD, SURREY, ENGLAND.

AFRICAN BEEKEEPING, successor to the S. A. Bee Journal, monthly, sub. 10/- per annum- THE EDITOR, P.O. Box 4, Bergvliet, C. P., South Africa.

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, Box 189, San Angelo, Texas, the only ranch magazine published serving the Angora Goat Industry. Subscription $3.00. Sample copy 25c.

MONEY IN DAIRY GOATS. Produce healthful milk. Monthly magazine—6 month trial $1.00. DAIRY GOAT JOURNAL, COLUMBIA T2, MO.

THE SCOTTISH BEEKEEPER (The official organ of the Scottish Beekeepers' Association.) Scottish in character, international in appeal. Annual subscription $2 post free. Sample copy from ROBERT N. H. SKILLING, F.S.C.T., 87 KING STREET, KILMARNOCK, AYSHIRE.

PACKAGE BEES ITALIAN QUEENS

Good Producers — Gentle
You will like them. Good service.

A. R. BANTA Los Molinos, Calif.

CAUCASIAN OR ITALIAN PACKAGE BEES AND QUEENS

Proven for honey production, easy handling, health certificate, live arrival guaranteed and top quality.

PRICES

Lots of	Queens	2 lb. & Q	3 lb. & Q	4 lb. & Q	5 lb. & Q
1 - 24	$1.50	$4.25	$5.35	$6.45	$7.55
25 - 99	1.40	4.00	5.05	6.10	7.15
100 - 499	1.30	3.75	4.75	5.75	6.75

FARRIS HOMAN SHANNON, MISS.

QUEENS

Italians		Caucasians	
Nice large queens	1-24	25-99	100 up
	$1.25	$1.15	$1.05

June Queens 75c ea., air mail 80c

For package bees see April issue. Yes, we were late getting started this season due to a very late spring in the South. On April 7th we finished stocking our large queen yards and can take care of your orders promptly.
So send us your orders of 1 or 1000.

Producer of Royal Jelly.

MITCHELL'S APIARIES
Bunkie, La.

Italian Bees and Queens

2 lb. with queen $3.50
3 lb. with queen 4.50
4 lb. with queen 5.50
Extra queens 1.20

Health certificate and live arrival guaranteed.

Raymond McFarling
Rt. 3 Tupelo, Miss.

QUALITY ONLY

ITALIAN QUEENS

for High Production
Prompt Service

FRANK G. STEWART
Phone: Millville 548
Box 87, Palo Cedro, Calif.

"Renee" Brand QUEENS

1 to 25 ..... $1.20
26 up 1.10

Live Delivery Guaranteed
Satisfaction or money back
Airmailed, clipped on request

TRADITION BEE & HONEY CO.
P. O. Drawer 307, Silver Springs, Florida
We Do Our Best to Satisfy

CANADA'S
National Monthly Magazine for Beekeepers

Canadian Bee Journal
Streetsville, Ontario, Canada

May is Here---

Have your BEES arrived?

Is your order in for future shipment?

Queen production was delayed at the start, due to weather. We hope this has been overcome by the time you read this. We are doing our best to this end. For prices read April ads.
(Copy written 4/7/58)

(J.G.) Rossman Apiaries
P.O. Box 133, Moultrie, Ga.
Res. Phone YUkon 5-6660

Carniolan and Caucasian

1958 QUEEN PRICES

1 to 40	$1.40 each air mail
49 to 99	1.30 each air mail
100 up	1.20 each air mail

$2.00 each to foreign countries.
Safe arrival in continental U. S. only. Ready March 1st.

No package bees this season.

W. D. REAMS
Box 87 La Belle, Florida

No Matter What Your Interest

Whether you are a Commercial Beekeeper; a Sideline Beekeeper; or a Beginner Beekeeper,—you'll find what you want in ABJ. PLUS Science and Industry; Honey Plants; Meetings; Crops and Markets—AND your questions answered FREE.

Send for a sample copy.

American Bee Journal
HAMILTON, ILLINOIS

XUM

"Old Reliable" BERRY'S Italian Bees

THE PREFERRED STOCK OF LEADING HONEY PRODUCERS
Oldest Package Shipper South

America's Best Package Bees and Finest Queens. INSURE your honey crop with DEPENDABLE BERRY Bees (90% of our package bees are under 10 days old).

After 63 years of Select Breeding, we have settled on our strain of Italian bees as being unsurpassed by ANY stock, Hybrid or otherwise, in their relation to honey production, disease, and nosema resistance. We have bred repeatedly from MAJOR advertised strains, and abandoned them all as unequal to our "OLD RELIABLE" stock. "OLD RELIABLE" bees assure you that you have bought the best to be found, regardless of price. They are the Standard of the Beekeeping Profession, in leading honey producing areas. We maintain several branches in the Northwestern States that enable us to test our strain from both honey production and climatic standpoints. All this, along with Competent Breeding, assures you that when a better stock is produced, "OLD RELIABLE" will be the name.

PRICE LIST OF OUR QUEEN BEES AND PACKAGES OF BEES WITH YOUNG QUEENS

	Quantity	Queens	2-lb. w/q	3-lb. w/q	4-lb. w/q	5-lb. w/q
Prices through May 20th:	1-24	$1.40	$4.50	$5.60	$6.75	$7.85
	25-99	1.30	4.25	5.35	6.45	7.55
	100-up	1.20	4.00	5.10	6.20	7.30
Prices after May 20th:	1-24	$1.20	$4.00	$5.00	$6.00	$7.00
	25-99	1.10	3.75	4.75	5.75	6.75
	100-up	1.00	3.50	4.50	5.50	6.50

For prices on queenless packages, deduct $1.00 from price of queen; all prices F.O.B. Montgomery, Ala.

Directions telling how to handle and a certificate of Health accompany all shipments. May we book your order NOW? Deposit of $1.00 per package required for booking. Remainder remittance in full ten days before shipping date.

References: Union Bank & Trust Co., Montgomery, Ala. Any Bee Journal in the United States or Canada. Ask your Extension Agent about us.

M. C. BERRY & SONS
P. O. BOX 684 MONTGOMERY, ALABAMA

RESEARCH REVIEW

(Continued from page 284)

Further research on queen substance may well change our present ideas on queen introduction, swarm control, and other management practices.

Butler, C. G.
Some work at Rothamsted on the social behavior of honeybees. Proceedings of the Royal Society 147:275-88. 1957.

The Use of Copper for Honey Processing Equipment

FOR MANY YEARS the question of using copper for honey processing equipment has been unanswered. It is known that copper cannot be used in contact with many foods since it has harmful effects. Milk is a good example of a food that would be spoiled by copper contamination.

However, honey is a great deal different in chemical composition from most foods. With this in mind, recent research has been conducted at Cornell University to determine the effect of copper contamination upon the development of color in the processing and storage of honey.

Buckwheat and clover honey were exposed to copper surfaces for various times and temperatures and then stored for 24 days at 122°F. It was found that traces of copper did dissolve in the honey, in addition to its normal copper content. At the end of the storage period both buckwheat and clover honeys which were most heavily contaminated with copper were not discolored any more than control samples which had not been exposed to the copper.

It therefore appears that copper can be safely used for processing, at least for short periods of about one to three hours at normal pasteurizing temperature of 160°F. Possible flavor effects were not evaluated in this experiment.

Einset, E. and Walter L. Clark
The effect of copper contamination upon the development of color in the processing and storage of honey. Food Technology 11:12-4. 1957.

NOTE—On page 279 second column, the "50 five-gallon drums" should read "55-gallon drums".—Editor.

QUALITY BEES

ITALIANS OR CAUCASIANS

We have had a very unfavorable spring here this year but conditions have improved and we should be able to handle your orders with our usual prompt attention.

PRICES TO MAY 20th

Lots of	Queens	2-lb. & Q.	3-lb. & Q.	4-lb. & Q.	5 lb. & Q.
1 - 24	$1.50	$4.25	$5.35	$6.45	$7.55
25 - 99	1.40	4.00	5.05	6.10	7.15
100-499	1.30	3.75	4.75	5.75	6.75

TESTED QUEENS $2.50 each

PRICES AFTER MAY 20th

Lots of					
1 - 24	$1.00	$3.85	$4.70	$5.55	$6.35
25 -499	.90	3.35	4.20	5.05	5.85

TESTED QUEENS $2.00 each

Queens Postpaid — Airmailed and/or Clipped no Extra Cost

10c each for Marking — Packages F.O.B. shipping point

THE STOVER APIARIES

Mayhew, Miss.

Caucasian Queens for 1958

1 to 24 ..... $1.40
25 to 99 ..... 1.30
100 & up 1.20

For Midnite Caucasian Hybrid Queens add 30 cents per queen to above prices.

NOTICE: We are sold out of package bees.

HOWARD WEAVER & SONS
Navasota, Texas

QUALITY BRED ITALIANS

Jan., Feb., and March, $1.45 ea.
April and May ..... 1.00 ea.
June through Oct., ... .75 ea.

Package Bees ready in April
Two pound .....(f.o.b.) $4.15
Three pound .....(f.o.b.) 4.90

We prefer to send package bees by Parcel Post so please inclose postage with order. All queens selected from our Northern Apiaries for Hardiness and Honey production All queens shipped Air Mail.

Walter D. Leverette Apiaries
Box 364, FORT PIERCE, FLORIDA

Simplex Automatic Speed Control & Timer

for all Radial Extractors

Set it — Forget it
Completely Automatic

Increases speed automatically according to pre-set time schedule. Easily adjustable.

Eliminates friction clutch and all exposed shafts bearings, etc., from top of extractor.

Uses ½" drill motor attached to reel axis shaft by an adapter as power source.

For Complete Information write

Banker's Honey Market
Cannon Falls, Minn.

XUM

THREE BAND and PURE ITALIAN HYBRID
Package Bees and Queens
We ship pure worker bees by mail, express, or truck—with queens introduced or not whichever you like. We guarantee live arrival.
1 9 5 8 PRICES
Each with a Young Laying Queen

Lots of	2 lbs.	3 lbs.	4 lbs.	5 lbs.
1 to 11, Each	$4.25	$5.35	$6.45	$7.55
12 to 29, Each	4.05	5.10	6.15	7.20
30 or More, Each	3.85	4.85	5.85	6.80

JACKSON APIARIES **P.O. Box 58** **Funston, Ga.**

California Caucasians

Gentle and industrious Caucasian queens. NEW - Midnite Hybrid Caucasian queens. Ready to ship about April 10th. 10% books your order - Balance due two weeks prior to shipment. Air Mail.

Number of Queens	Regular	Midnite
1 to 24	$1.40	$1.70
25 to 99	1.30	1.60
100 and over	1.20	1.50

Quality and Service Doesn't Cost — IT PAYS

DON J. STRACHAN **Yuba City, Calif.**
R. 2, Box 83 **Phone Sherwood 23881**

NORMAN'S
BEES & QUEENS
"Home of Quality"
— Now Ready —

Try John A. Norman's Bright 3-Band Italian Bees and Queens. All orders appreciated and given prompt attention. Safe arrival, young laying queens, full weight packages, and satisfaction guaranteed. State health certificate furnished.

Untested Queen	$ .90
Tested queen	1.80
2-lb pkg. with queen	3.75
3-lb. pkg. with queen	4.75

Packages shipped F.O.B. Express or via parcel post, postage collect.

JOHN A. NORMAN
Grady, Alabama Route 1

HONEY WANTED
Cut Comb and Extracted
Advise what you have
T. W. BURLESON & SON
WAXAHACHIE, TEXAS

FRED FLORY

(Continued from page 279)

if you could see his bees after a run-in with the menacing crop dusters that can mean complete destruction of an apiary or such heavy losses as to make a honey crop impossible. The Florys requeen at least 50 per cent of colonies each year because of losses from poisons and probably lose 30 to 40 per cent of the possible crop because of field bees being killed at critical times in the honey flow. It may be in the risk of pollinating alfalfa seed to lose bees but it isn't worth the five or even ten dollars charged. All other beekeepers in the same area feel the same and no amount of money makes up for the empty hives in the fall and following spring.

Mr. Flory is not a large man, but he is full of energy when it comes to bees and is always ready to help a beginner or any beekeeper who needs help. In spite of a heart attack this summer and a poor crop and rising costs, he still continues to make plans for the coming year—one of his best, I hope.

ITALIAN.....“GULF BREEZE”.....QUEENS

Gulf Breeze queens are bred to a high standard of quality. Use them for requeening and for divisions.

Prices:

1-9....$1.40 10-49....$1.30 50 up....$1.20 ea.

BESSONET BEE COMPANY **Donaldsonville, La.**

QUEENS **PACKAGES**

Rearing Italian queens and bees of reliable quality is our only business.

	1-24	25-99	100-up
2-lb. pkg. with queen	$4.50	$4.25	$4.00
3-lb. pkg. with queen	5.70	5.45	5.20
Queens	1.45	1.35	1.25

Deduct $1.00 on queenless packages Tested queens, $2.50

W. E. PLANT **Hattiesburg, Miss.**

ITALIAN QUEENS PACKAGE BEES

	1-24	25-49	50 or over
May queens	$1.25	$1.10	$1.00
2-lb. pkgs.	4.15	3.75	3.75
3-lb. pkgs.	5.10	4.75	4.75

JOHN S. SHACKELFORD **RIO OSO, CALIF.**

Phone Wheatland, Calif. NEptune 3-2392

PACKAGE BEES QUEENS

“ITALIANS”

Wilbanks offers you tested stock proven for honey producing ability and easy handling. Satisfied customers through the years assure you of the greatest value here.

	1-9	10-49	50-up
2-lb. pkg. with young laying queen	$4.24	$4.00	$3.75
3-lb. pkg. with young laying queen	5.35	5.10	4.85
4-lb. pkg. with young laying queen	6.45	6.10	5.85
Extra Queens	1.40	1.30	1.20

Shipments by Express, Parcel Post, or your Truck

Quality Does Not Cost — It Pays

THE WILBANKS APIARIES **Claxton, Georgia**

SMITH'S BEES

We will have plenty of packages during May. Get our prices for May 10th and later delivery of our superior three banded bees. Help your weak colonies with booster bees.

N. B. Smith & Co.
Calhoun, Alabama

HARPER'S FAMOUS
High Quality Italian
Queens & Package Bees

2-lb. package w/queen $4.00
3-lb. package w/queen 5.00
Queens after May 5th 1.00

(by air mail)

CARLUS T. HARPER
New Brockton, Ala.

XUM

JENSEN'S

Package Bees and Queens

Packages with Dadant "Starline" Hybrid Queens				Packages with Jensen's "Magnolia State" Italian Queens		
	1-24	25-99	100-up	1-24	25-99	100-up
2 Lb.	$4.80	$4.55	$4.30	$4.50	$4.25	$4.00
3 Lb.	5.90	5.65	5.40	5.60	5.35	5.10
4 Lb.	7.00	6.75	6.50	6.70	6.45	6.20
Starline —QUEENS— Magnolia						
$1.75	$1.65	$1.55		$1.45	$1.35	$1.25

Reg. U. S. Pat. Off.

Clipped and Marked Free — Air Mail Postage Paid

JENSEN'S APIARIES — MACON, MISS. — U.S.A.

BETTER BRED QUEENS
THREE BANDED ITALIANS

As we write this ad, April 10th, spring has opened with a bang—about 3 weeks late. We will have plenty of bees for May shipments. Rush orders filled promptly.

	Queens	2 lb. w/q	3 lb. w/q
1 to 24	$1.40	$4.25	$5.35
25 to 99	1.15	3.75	4.75

After May 15th, packages 25c less. Queens 85c any quantity.

CALVERT APIARIES — Calvert, Ala.

Buy Quality Package Bees & Queens
Dadant Starline Hybrids & Garon's 3-Banded Italians

	QUEENS		PKG. BEES WITH QUEENS		
	Starlines	Italians	2-lbs.	3-lbs.	4-lbs.
1-24	$1.70	$1.30	$4.05	$5.05	$6.05
25-99	1.60	1.25	3.95	4.95	5.95
100-up	1.50	1.20	3.85	4.85	5.85

For Dadant Starline Queens, add 30c extra per package
May 20th—deduct 20c per unit on above prices—
EXCEPT on Starline Queens—to be reduced June 1.
Queens clipped, marked and air mailed at no extra charges.

Reg. U. S. Pat. Off.

GARON BEE CO. — Donaldsonville, La.

JUST NEWS

(Continued from page 307)

used in bee culture, hive parts, foundation, etc. The varied shades of honey, uncapping, extracting, straining and botteling were shown. Also a one-frame display hive of live bees, and the queen just as she deposited an egg in a cell. For this our association gratefully extends its many thanks to the above TV Station and trust it may be of some benefit to the beekeeping industry.—A. F. Ferguson, Secty.

Sixteenth Annual Short Course in beekeeping will be given on May 7, 8, and 9 at the St. Paul Campus of the University of Minnesota. The life story of bees, their development, nutrition; spring, summer, fall management and wintering; production, marketing and the food value of honey; value of bees to agriculture; beekeeping laws and diseases of bees will be discussed. The course is open to all.

A WIFE'S VIEWPOINT

(Continued from page 280)

different method on some things if others have proved it useful.

So far I haven't been sorry that we are in the bee business, or should I say honey business? It's a good life and we're gradually getting ahead a little in spite of short crops the last two summers and adverse marketing conditions this year. I wouldn't mind at all if our four-year-old son would some day follow in his Daddy's footsteps. (Providing, of course, that he outgrows his allergy to bee stings.)

TOO LATE TO CLASSIFY

ROYAL JELLY Capsules 50 Mg. vials of 30 capsules, $36.00 per dozen vials. Capsules in bulk, $55.00 per thousand. 5,000 or more, $50.00 per thousand. 100,000 special formula furnished, $40.00 per thousand. Write for price on a very wonderful Beauty Cream in 10 gross lots. You furnish your own Royal Jelly. O. K. ANDERSON & SON APIARIES, BOX 193, COFFEE SPRINGS, ALABAMA, U.S.A.

YORK'S 1958

Italians Starlines and Quality Bred Midnites

Fumadil Fed

The Strains Preferred by Leading Honey Producers

Packages with Italian Queens

Quantity	1-24	25-99	100 up
2 lb.	$4.50	$4.25	$4.00
3 lb.	5.70	5.45	5.20
4 lb.	6.90	6.65	6.40
5 lb.	8.10	7.85	7.60
Extra Queens			
Italian	1.45	1.35	1.25

Queenless packages —deduct $1.00 per package

Tested Queens — add $1.00 per package or queen.

Packages with Starline or Midnite Queens

Quantity	1-24	25-99	100 up
2 lb.	$4.80	$4.55	$4.30
3 lb.	6.00	5.75	5.50
4 lb.	7.20	6.95	6.70
5 lb.	8.40	8.15	7.90
Extra Queens Starline or Midnite	1.75	1.65	1.55

Terms: Small orders cash, large orders $1.00 deposit per package and balance two weeks prior to shipping date.

YORK BEE COMPANY **Jesup, Georgia**
(The Universal Apiaries)
412 W. Orange Street **P.O. Box 300**
Phone: Garden 7-4131

Reg. U. S. Pat. Off.

They **Produce** and **Reproduce**
Good Italians That Will Produce Honey and Reproduce Themselves.
No Hybrids.
May Prices **QUEENS, $1.25** Any Number
2-lb. pkg. with Queen, $4.00 **3-lb. pkg. with Queen, $5.00**
BOOK ORDERS IN ADVANCE IF POSSIBLE
J. F. McVAY **Jackson, Ala.**

BETTER QUEENS

(Continued from page 276)

the whole tier. We have used these little deals for ten years now and are convinced that they provide the best way to transport queens as well as quite a few bees. We use them to provide the extra queen for two-queen colonies, to set on top of colonies where we found and killed poor queens in overwintered colonies, and to make increase by the addition of several combs of brood and bees.

With the rapid fire methods of modern beekeeping we seem to be getting farther and farther away from our understanding of bee behavior. It is not uncommon to talk to a successful young honey producer and find that he has comparatively little understanding of the intricacies of bee lore. While a knowledge of these "fine points" may not be as necessary as we old timers once thought they were, it seems to me that they add greatly to one's pleasure in operating bees for profit. Producing a given number of pounds of honey per man-hour or labor is doubtless the key to financial success, but these pressure methods do much to deprive beekeeping of the charm it has held for so many of us. Queen rearing makes many demands on a knowledge of some of these fine points and when attempted on a reasonable scale can offer some of the most rewarding as well as some of the most challenging aspects of beekeeping.

The End

XUM

QUEENS
only
QUEENS
A. Vallotton
1442 So. Juniper
Escondido, Calif.

The best obtainable because we use the most modern methods and equipment. Breeding queens really selected from all over the States. We have the ideal location for climatic conditions required for highest quality queens.

1-100 ..... $1.25
100 up 1.10

Airmail — All Guarantees

HOLLOPETER'S ITALIAN QUEENS
In Season
WHITE PINE BEE FARMS Rockton, Penna.

FLOWERS Quality ITALIANS
OUR BEES STAND TEST FOR HONEY GATHERERS: GENTLE: PROLIFIC: Bred from hives making 300 pounds or over honey. FUMIDIL-FED grafting and queen yards. HEALTH CERTIFICATES with each shipment. We are prepared to fill all orders promptly. COME AFTER YOUR BEES or shipped express or P.P. PROMPT LIVE DELIVERY GUARANTEED. $1.00 deposit per package. Balance two weeks prior to shipping date. ORDER NOW FOR CHOICE SHIPPING DATES: PRODUCERS OF ROYAL JELLY ALSO. WRITE US ON LARGE ORDERS. WE CAN HELP YOU.

All packages with select young laying queens F. O. B. Jesup.

2-lb. pkg. w/q $3.75
3-lb. pkg. w/q 4.75
4-lb. pkg. w/q 5.75
5-lb. pkg. w/q 6.75
For Queenless Pkgs. deduct price of Queen
Tested Queens 2.00
Select Queens 1.00
1 or 1000 airmail

FLOWERS BEE COMPANY
Jesup, Georgia, U.S.A.
PHONE: JUNO 4-2830 or 4-2837

POLLINATION OF CROWN VETCH

(Continued from page 283)

head may be considered to consist of 12 fingerlets with ten seeds in each or 120 seeds. A good set is considered to be 80 seeds per head. The blossoms in the cage yielded approximately 10 seeds per head and those in the fields 18 seeds. Either figure is far from a perfect set for these blossoms. Quite a number of seedless blossom stems were scattered among those with seed. What the answer to this problem might be is yet to be determined. It may be that a much heavier population of honeybees is needed. It was determined that honeybees do work these blossoms which are self-sterile and thereby render a service by pollinating them even though they do so reluctantly and prefer other blossoms such as sweet clover.

This study indicated that honeybees can and do pollinate crown vetch. It also indicated that this plant was not a good nectar producer and was not attractive to honeybees under conditions prevailing during the summer of 1957. The bees preferred other nectar-secreting plants when they were nearby and in blossom.

NORMAN BROS.
Bright 3-Banded Italian
BEES & QUEENS
For fine quality bees and dependable service, KEEP US IN MIND. We rank with the best in quality and service. Full weight, safe arrival, health certificate and satisfaction. In U.S.A. and Canada.
37 Years as Shippers

— PRICES —	1 to 11	12 to 100
2-lb. pkg. with queen	$4.25	$4.00
3-lb. pkg. with queen	5.25	5.00
Untested queens	1.10	1.00
Tested queens	2.10	2.00

Package bees F.O.B. Express. Shipped parcel post by request. Add postage.
NORMAN BROS. APIARIES RAMER, ALA.

Italian Queens
EUGENE WALKER
Rt. 2, Box 982
Live Oak, California

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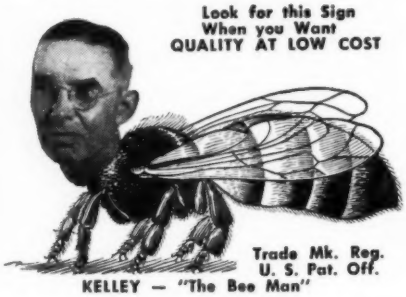

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